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THE INLAND ARCHITECT AND NEWS RECORD

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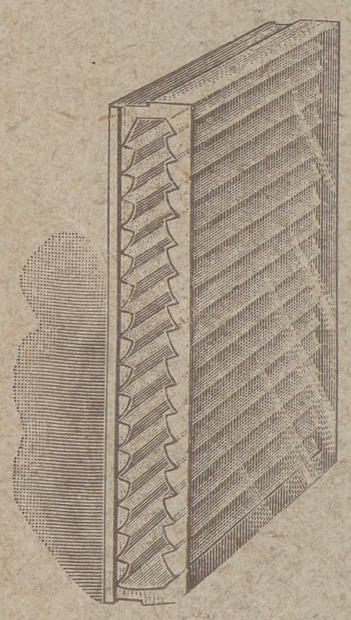

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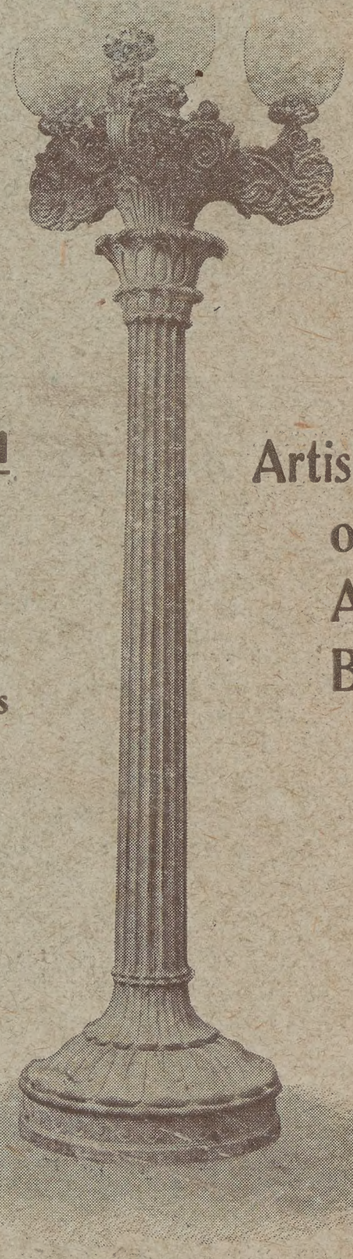

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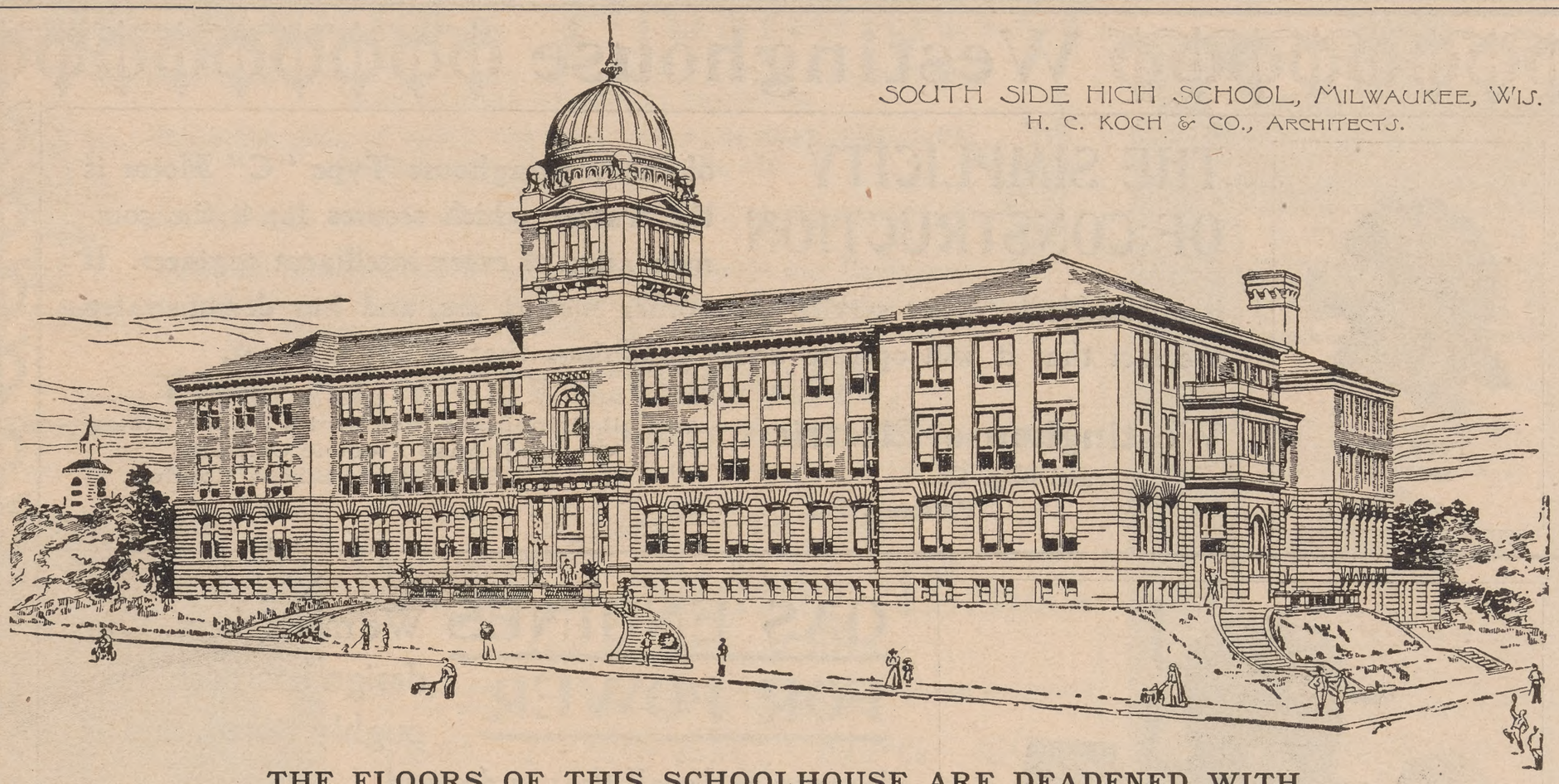

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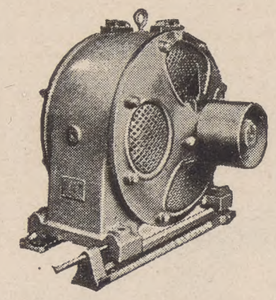

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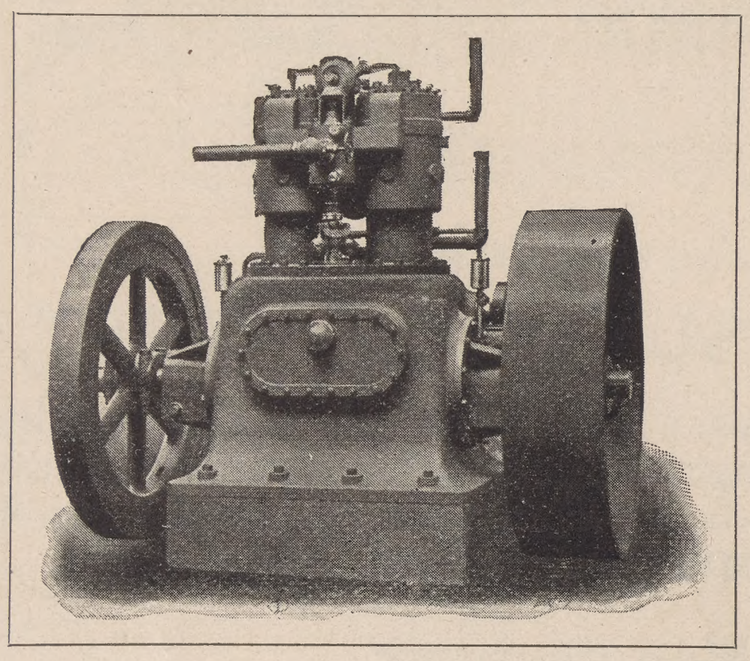

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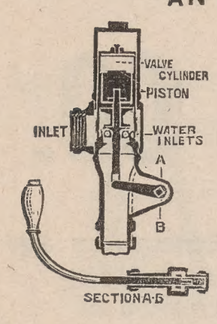

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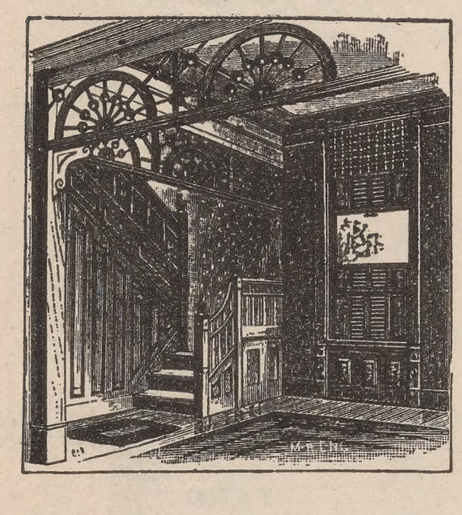

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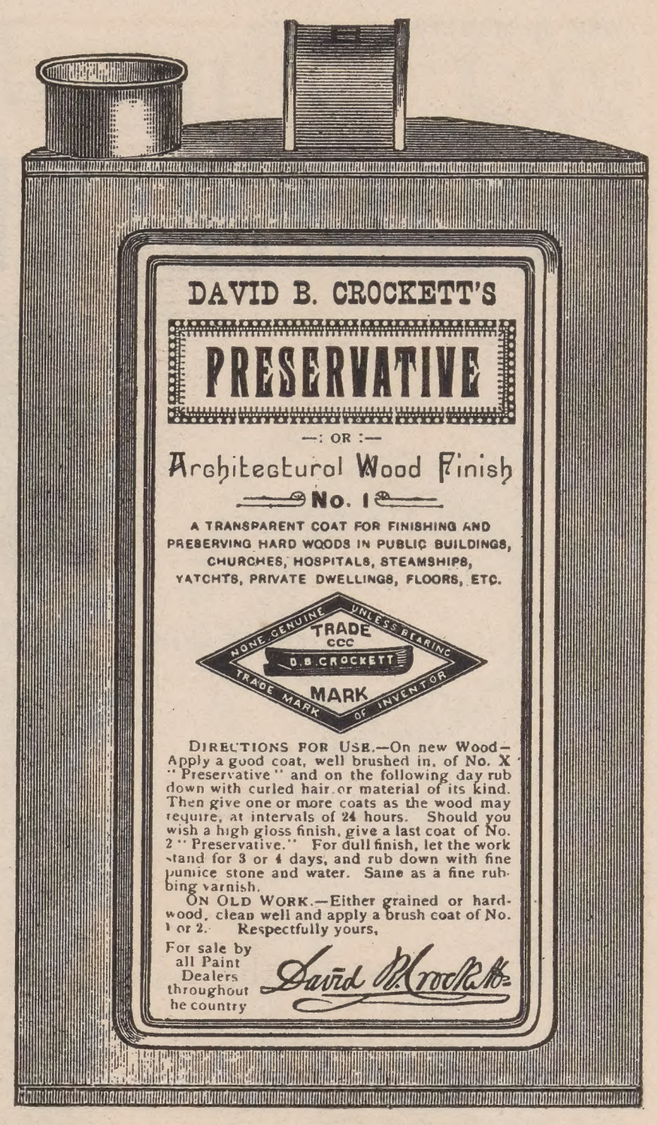
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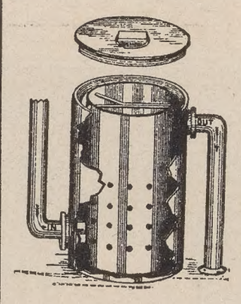

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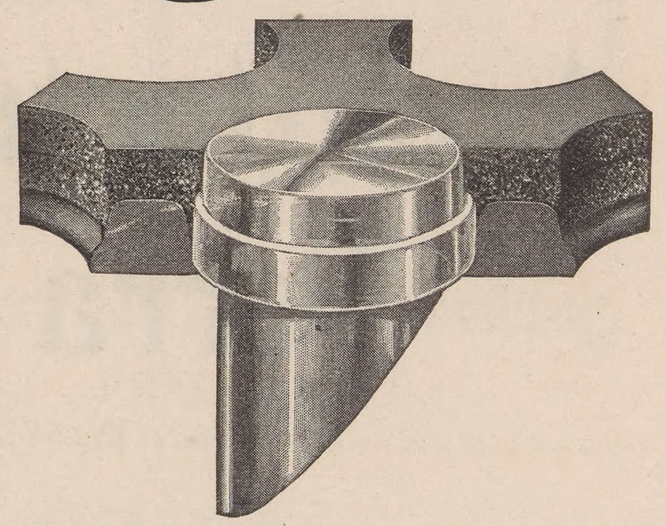

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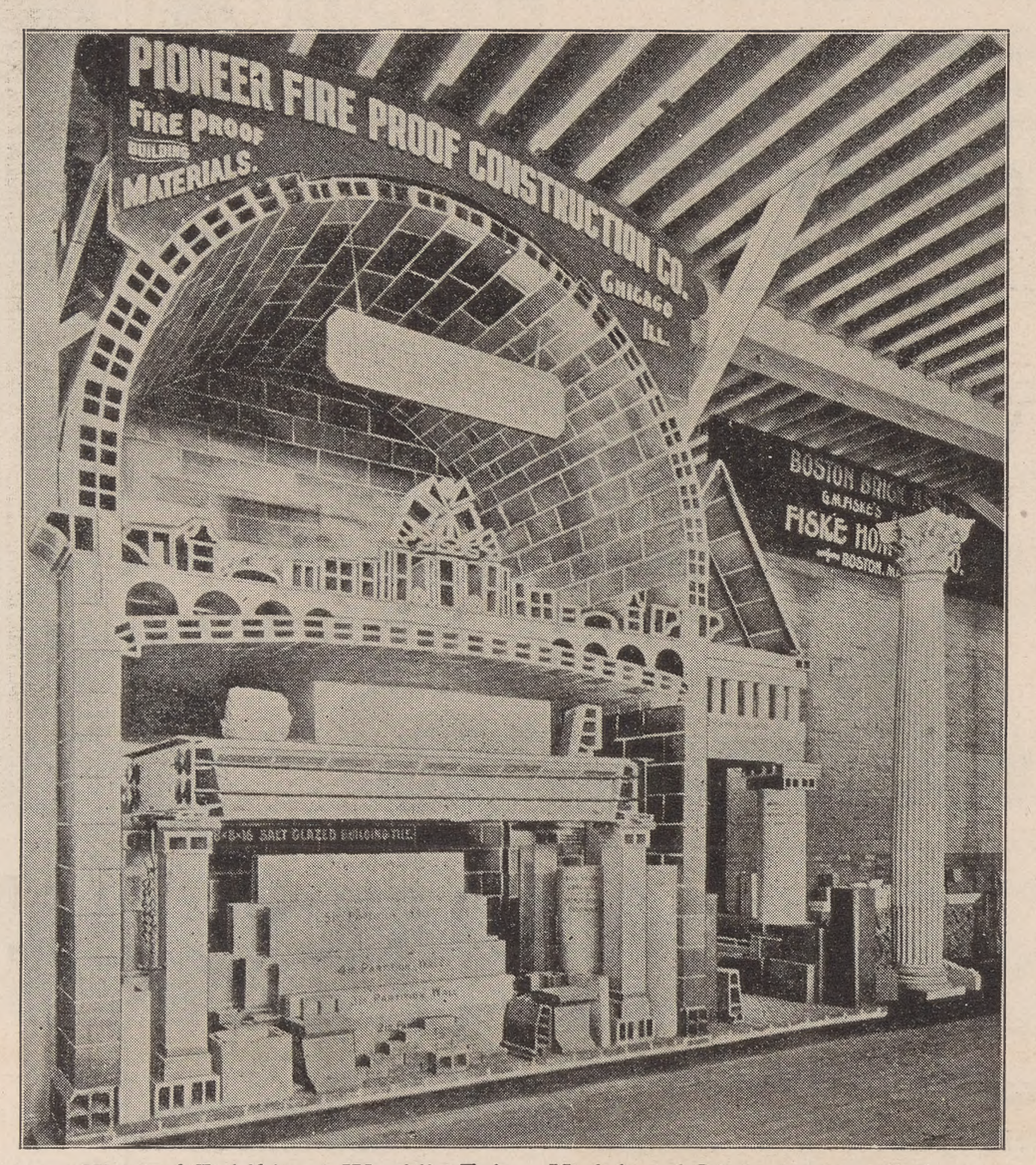

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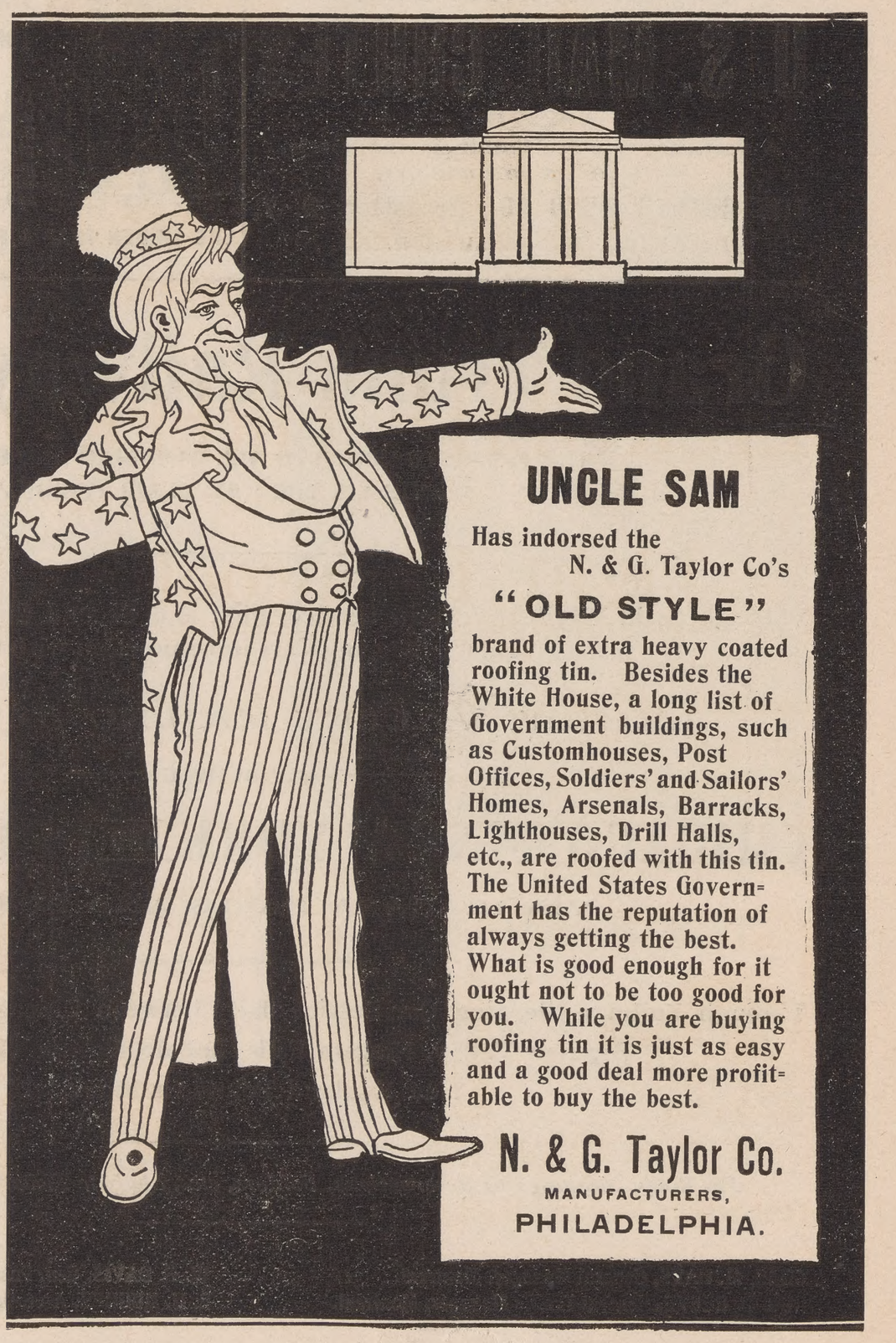
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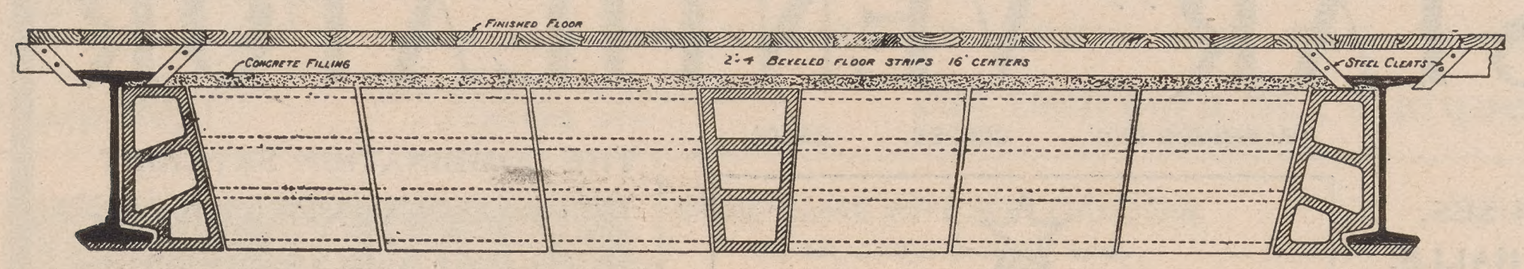

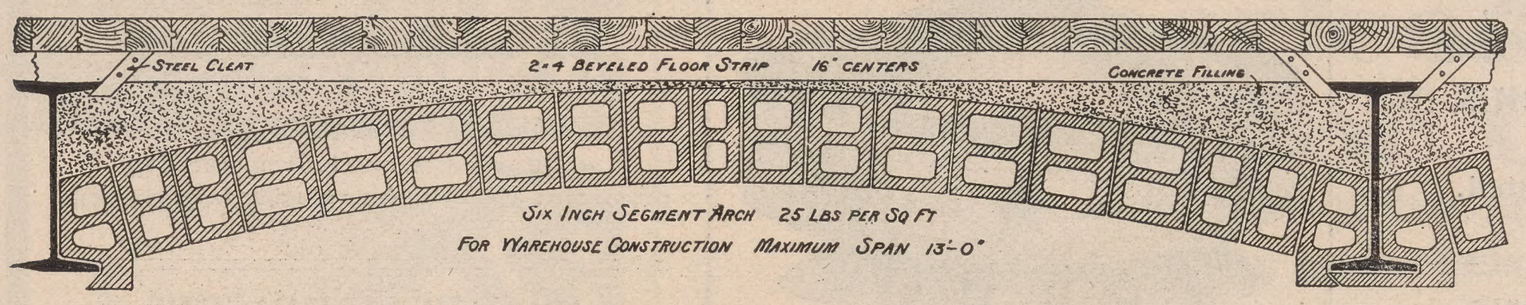
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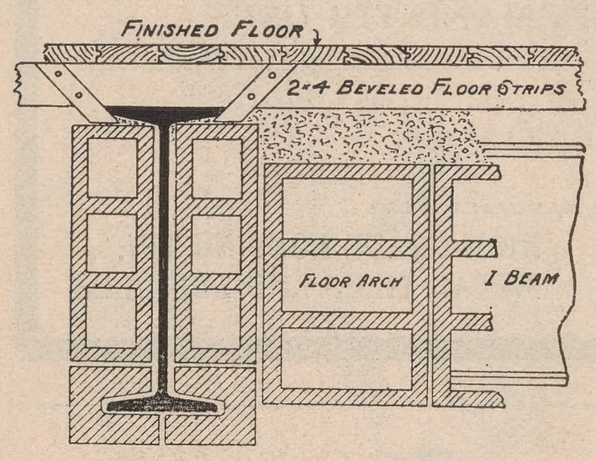

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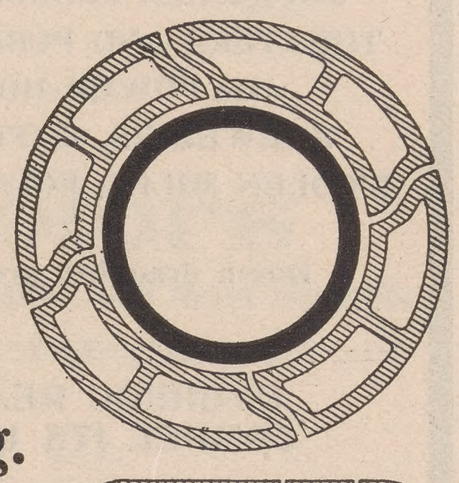

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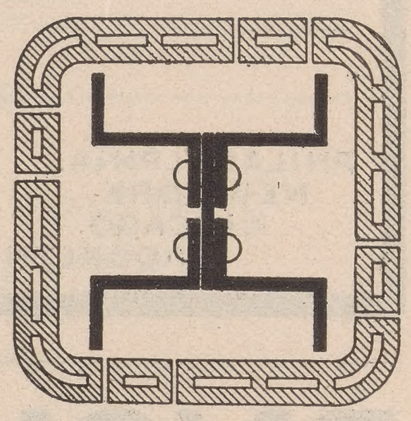

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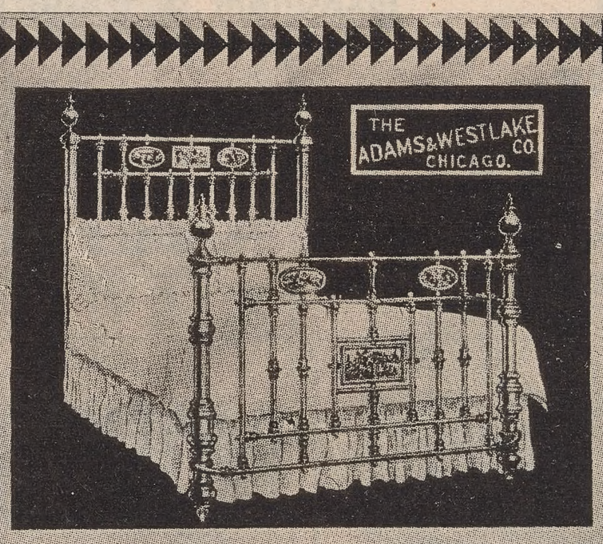

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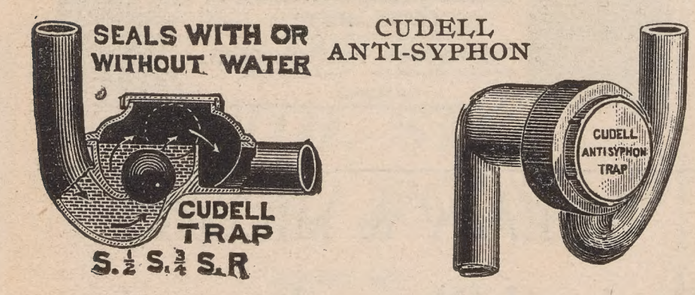

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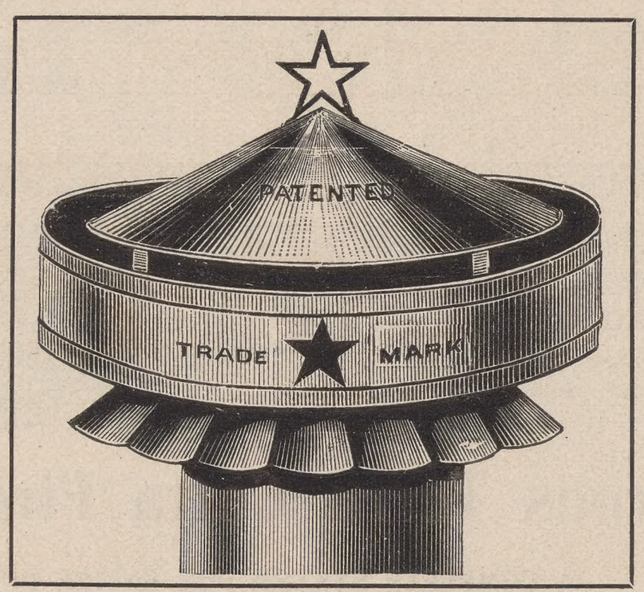

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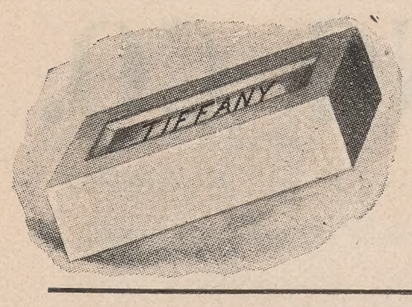

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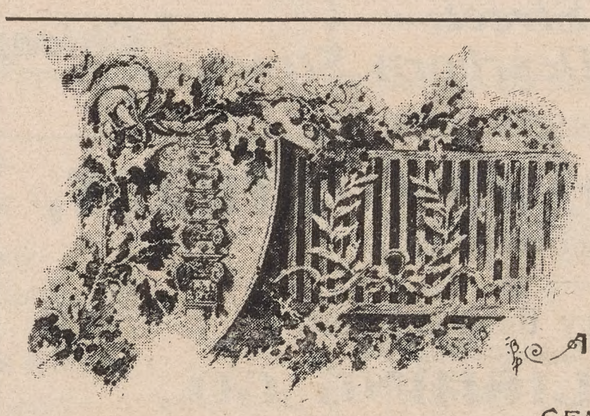

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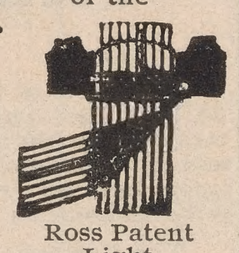

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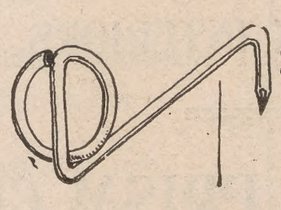

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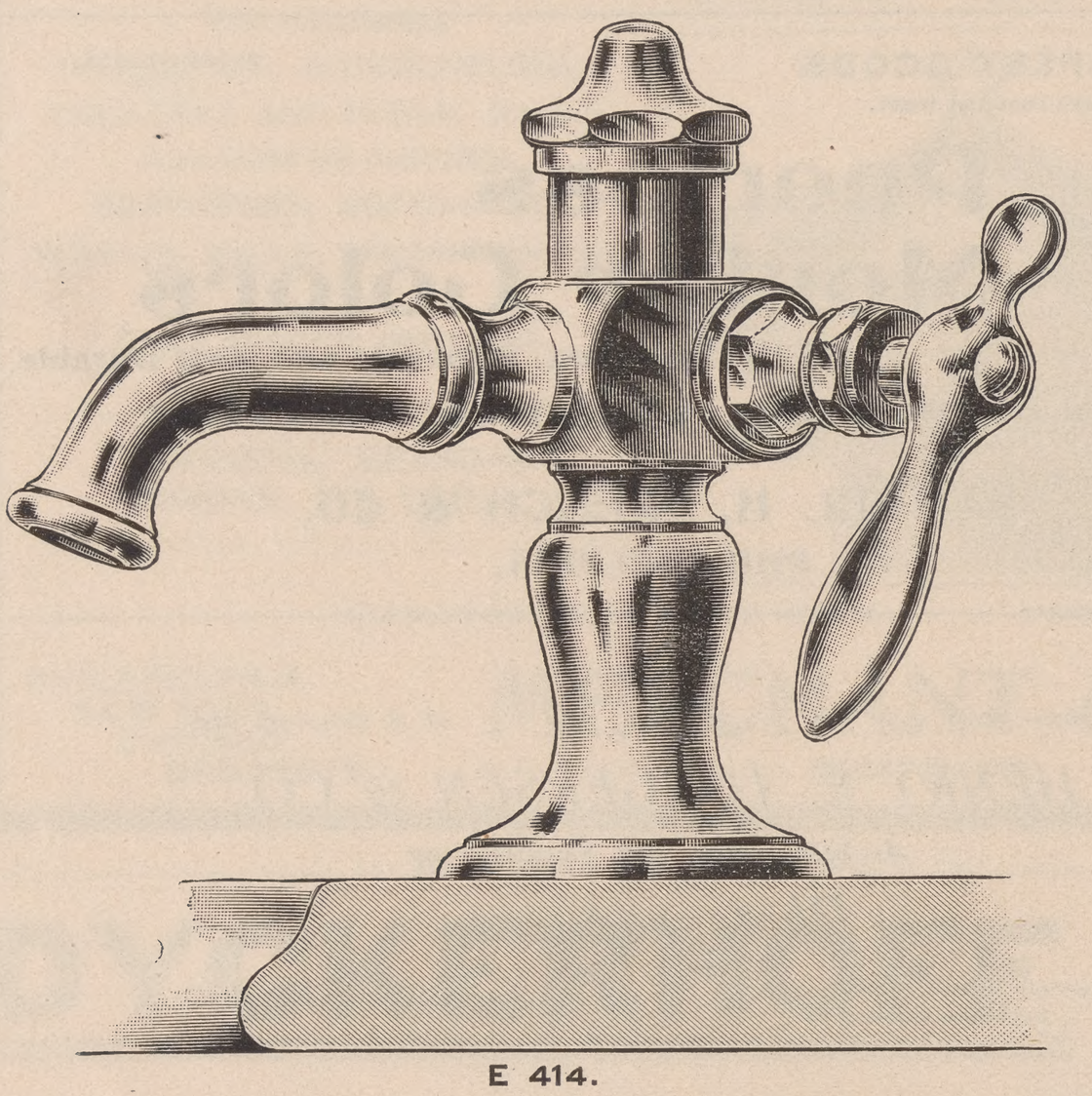

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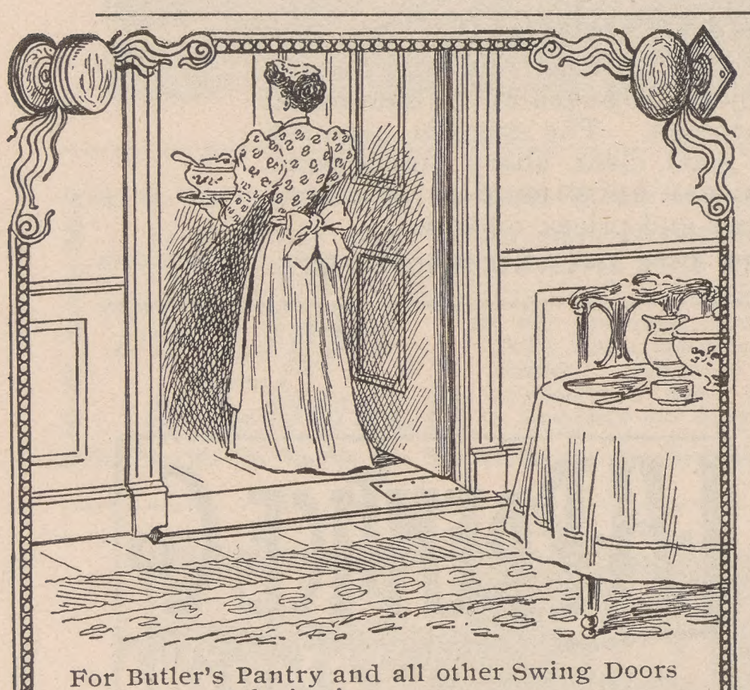

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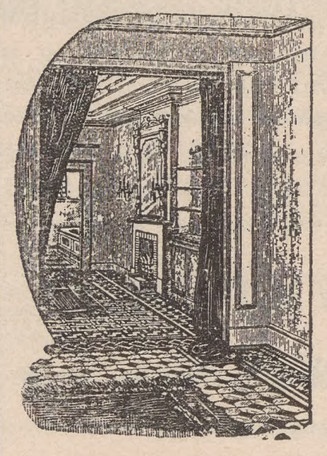

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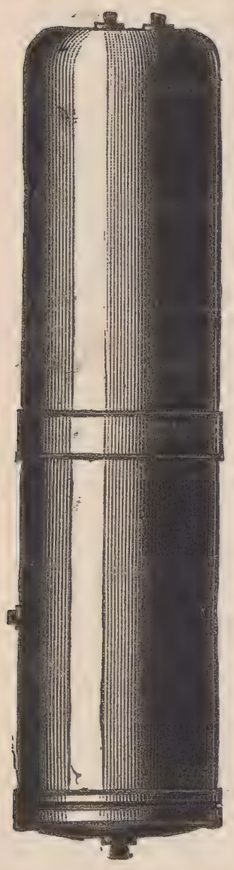

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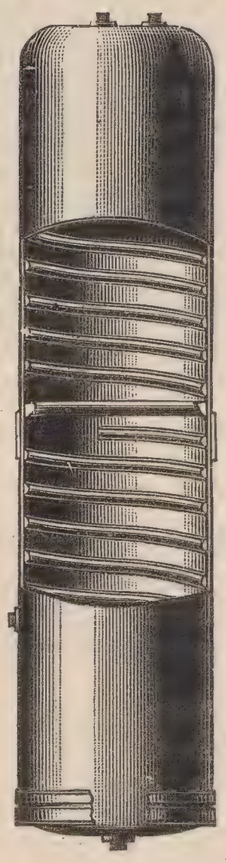

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The Deserved Prominence of the Engineer in Architecture.

According to the leading magazines, the poets and the technical journals, the "engineer" seems to be one of the main topics of discussion. It is an evidence of closer inspection into the causes and details of things, and the general trend of opinion seems to be that he has been an important factor and one that has been growing in importance until he forms the axis around which all constructive and operative motives revolve. Kipling went down into the engine room of a "liner" and found McAndrews, and so sung his "hymn." The essayist in *Engineering* reviews the part played by the engineer in the naval battle of Santiago; and commencing with the excellent paper read before the last convention of the Institute, the importance of the constructive engineer is discussed by the architectural press. It seems to us that all these writers are right in the main, yet they are only right so far as they plead for a proper credit for those who have been too thoroughly ignored. It is true that it was wrong for the passenger to thank captain and crew for a safe and pleasant voyage and forget the "dour Scots engineer," when the slightest inattention on his part would have laid the great steamer "a log upon the sea." It is true that in the fight the heating of a bolt unnoticed might have lost the battle, and in the case of a steel building the training of the civil engineer enters largely into the problem. But with all this the architect, the master workman, in the gathering of all the details and conditions of construction, design and service is indispensable. In the designing and construction of a building we know of, an engineer was employed. He had received architectural training as well, so that he was capable of meeting the architectural problems involved. No sooner was his steel structure fairly under way than one of the most distinguished engineers of his city entered a protest and called his young *confrère* to his office to warn him that his system of construction would end in disaster. It is true that his bridges were noted for their stability and his knowledge of the strains of a bridge truss beyond dispute, and according to his knowledge he spoke. Another of these celebrated C. E.'s wrote to the papers and alarmed both owner and public by his vivid picture of a sixteen-story building toppling into the street. Fortunately the owners had confidence in their architect and his engineer, and the latter subsequently received from a foreign society the highest approval known to American civil engineers for his skillful work on this structure. It was the architect in the engineer that triumphed. His friend had told him that the lower story must be cross-braced with iron every six feet, but as this lower story was required for renting purposes such a scheme could hardly be carried out. It goes to show that while all these specialists are valuable in an architect's office, the architect, or specialist with architectural training, must control all, and the architect's success in his profession lies in his knowledge not only of general design and construction, but of the many and varied scientific problems that enter into the construction of the modern building, otherwise the bridge truss engineer will make a fort of the lower stories, or the elevator constructor will use the best renting space for his machinery.

IF carefully analyzed we will find that most of our views of great events, matters of public moment and of necessary policy are generally tinged, if not absolutely painted all over, with the coloring of our own personal whims, desires, sorrows or myopic views.

A few days ago I was away from home for awhile, and left orders with one of the best painters and decorators in town to polish up my library floor for Christmas. He stood so high in the trade that I did not dare give specific directions. He did it with a cheap varnish — some sort of rosin and coal oil, I suppose — and the result is that I have a splendid burglar-detector in that floor, for, dry as I let it get before walking on it, the blamed thing shows the footprint of every man, woman, and a score or more children in the house — and I paid him the price of good work without a murmur, and will get down on all fours and scrape it and wax it myself in the bargain.

So, perhaps, my prelude fits my case perfectly. Whether it does or not, what comments I make are not the result of any study of the subject, but simply the result of personal observation, and it may be my fault or my misfortune that my lines have been cast where those particular kinds of observation were possible. Moreover, I do not care to enter into any argument about the matter, and if anyone who does know a good deal about the subject will put me straight I will simply feel obliged to him and hold my peace.

Briefly, what is bothering me is this: What will we do when the present generation of skilled craftsmen, who have learned their trades in the old countries, or here before it became the fashion to not learn those trades, makes way for the young gentlemen who will succeed them? Will we give up having elegant, thorough work done? Will the new crowd be endowed with such superior natural ability that learning will be unnecessary, or will we keep on importing skilled labor, or what the mischief *will* we do? As intimated before, it may be by a peculiar and unfortunate train of circumstances, but of late it would seem that I run across nothing but indifferent if not absolutely unskilled craftsmen — my floor varnisher included. Take the house carpenter: the average one is a wood butcher. He starts out as a youngster with an axe and a saw; there is no apprenticeship; he simply sees the old fellows nailing up siding and shingle, and he does as nearly like them as possible, and his graduation into the ranks of journeymen carpenters is surprisingly quick and mysterious; he gets the same pay as the best, and if fairly bright, soon becomes a contractor and employs those same old fellows. Has anyone else seen a young American-raised mason who can lay up a decent job of rubble-work, let alone an artistic job of "Scotch rouble"? And the fine cabinetmakers, iron workers, stone carvers, and other artistic craftsmen—are we raising any at all, or a sufficient number to fill the demand there will be?

Our manual training schools are perhaps a step in the right direction, but of the hundreds of youngsters I have seen pass through them I know of perhaps half a dozen who kept on in any of the trades; the great majority became business men, professional men, fellows who are handy with the tools and can nail up a shelf, fashion a poker or varnish a chair to their wives' dissatisfaction and the detriment of the surrounding landscape. It would seem to me that we are *too* progressive, too bent on accomplishing rapid results; we chafe under the restraint of learning anything by the old-fashioned, plodding ways. We have to have fizz and ginger, and have it with a rush, too.

Without seeking to dissect the question, or even to probe at all deeply into it, it does seem too bad that it is so hard to get a really good mechanic at work, and the farther south you go the harder it seems.

And that same lack of thoroughness seems also to have found its way up from the ranks right into the inner fold, the commissioned officers' quarters. How much study will a youngster go through in architecture, in comparison with the old-timer? The average young fellow entering our ranks, not as a modest neophyte humbly begging for admission, but as a saucy young scamp with a cigar stuck in the corner of his mouth, hat on the back of his head and pounding on the door wondering "why in thunder they don't come quicker," has a decided aversion to study. He traces for a while, gets a smattering, draws readily and "renders" beautifully, and jumps into a junior partnership or a job for himself in no time and is one of us henceforth, and why not?

I couldn't help commenting mentally in about that vein some time ago, and comparing the "now" with the "long ago," the new with the old régimes. There were ten architects present, among them some notables, men who do the principal work in the sections they represent. No, it was not at the convention, so there's no use counting noses. Well, among them there was not one who had had a full university, classical education, that, thirty years ago, was deemed the first essential step in our profession. Two had had a year or so at some polytechnic school or other, the others had gone the ordinary course, simply grinding over a drawing board in the various stages of "kid," helper, draftsman and designer, and in five cases I personally know of were more or less innocent of ever opening a book to actually study anything about art; they just merely absorbed it and in such very ordinary atmospheres as the ordinary architects' offices offer where the ordinary buildings of commerce are ground out. Only one of the ten had ever been beyond the confines of our country, and he had been abroad for three months, during which he *did* the entire continental tour! And these were ten representative men, too.

Yet we are confronted by facts, and they are startling. Is it that young America really does not need to study; that his mental processes differ so radically from our old-fogy processes that he has but to will something and he immediately accomplishes it; or what is it? We see not only isolated cases of lack of study among architects and a crudity of manipulation among our mechanics, but we find that those cases are fairly representative of the general average, and we are prone to philosophize over the discovery and imagine the whole blessed world is going to the demnition bow-wows; and then we look around again and see as handsome buildings going up as any country can show, and far more daring feats of engineering accomplished than are even thought of elsewhere. We note that our bicycles and typewriters, our locomotives and machinery generally are the best in the world. An occasion presents itself for fine decoration and it is done quickly and well; our buildings are better adapted to our wants than are those of any other country; our homes have more comforts; and all in all we note that we are not behind the times, and that, whatever the methods, the results are on the whole more startling and more satisfactory than under the old régime. We wonder what it all means: if study and application and lore and all the other things we used to labor over were all for naught, and the slap-dash new way is the natural evolution of things, the correct thing; but what is the use of thinking, anyway? Perhaps our old latin-quarter song was the proper caper after all:

"N' importe où,
On y va,
On y va
Toujours en avant
Trou la rou,
N' importe où."

NEW YORK CITY has one building each of twenty-nine and twenty-six stories, two of twenty-three stories, three each of twenty-two and twenty-one stories, five of twenty stories, four each of nineteen and eighteen stories, and fifty-seven ranging from eighteen to ten stories. The Manhattan is 246 feet, Manhattan Hotel 225 feet, Dun 223 feet, Hotel Netherland 220 feet, Gillender 219 feet, and Mutual Life building 210 feet high.

T

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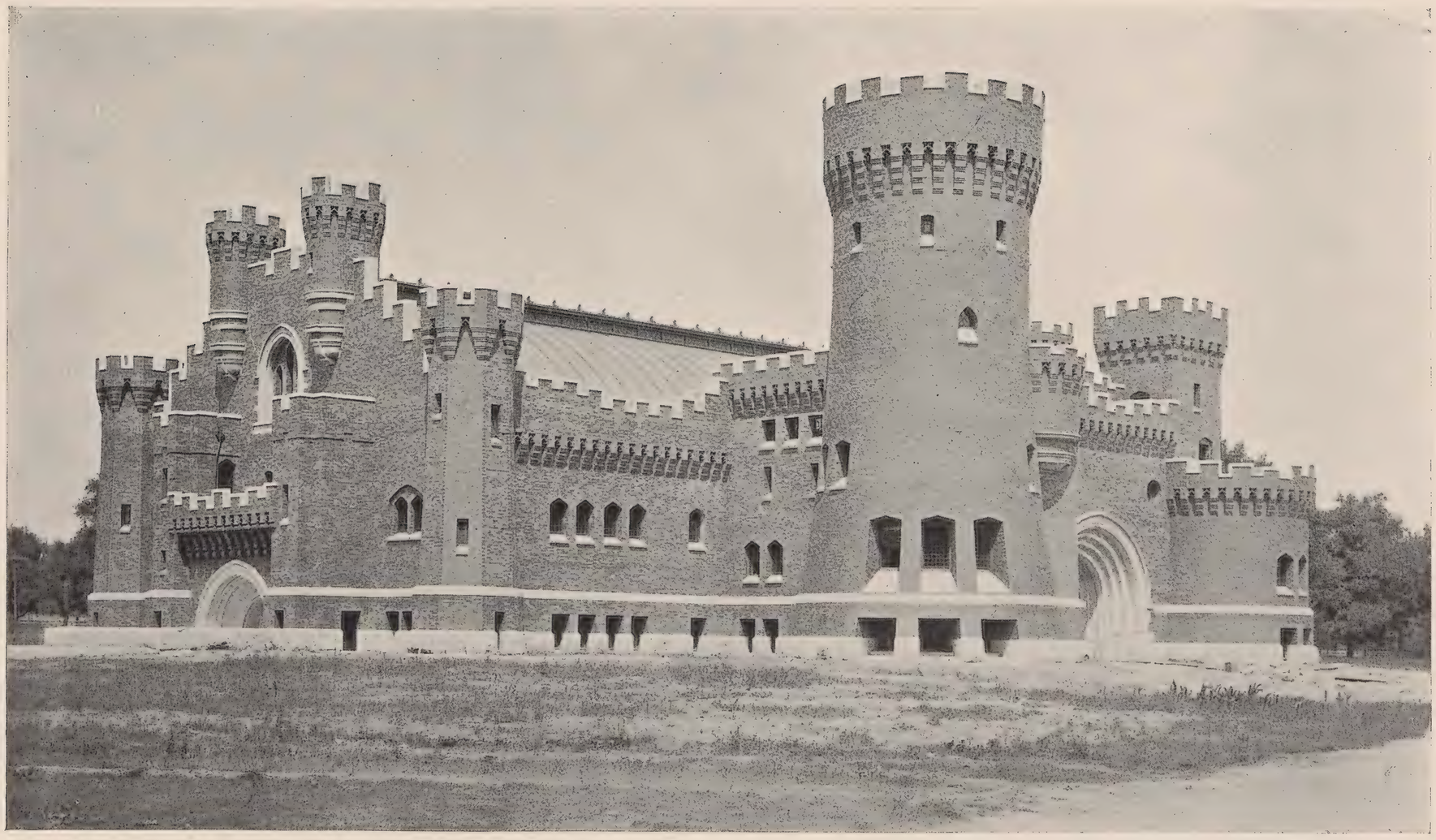

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THE DRAWING-ROOM AT BRAMHALL HALL, CHESHIRE, ENGLAND.

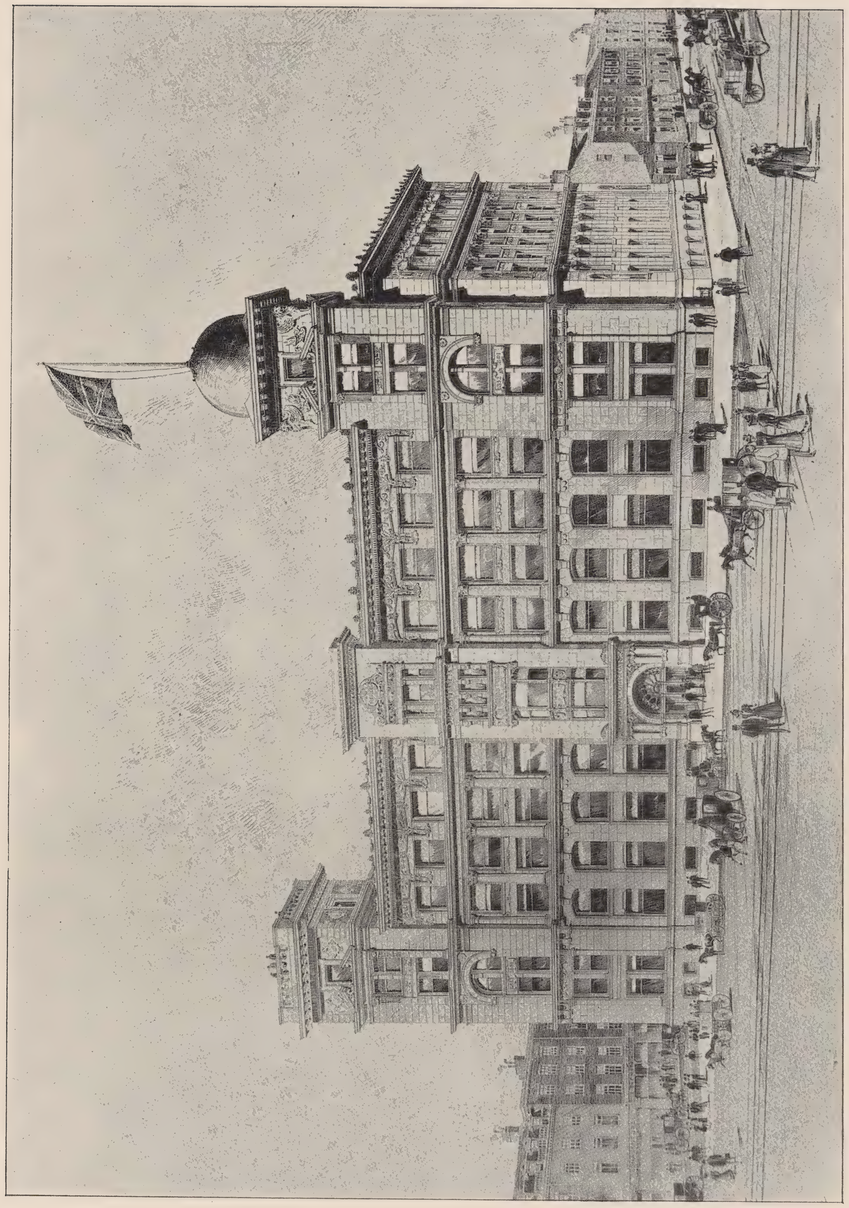
THE PLASTER ROOM, BRAMHALL HALL.

THE OLD BANQUETING HALL, BRAMHALL HALL, CHESHIRE, ENGLAND.

SOUTHEAST VIEW OF BRAMHALL HALL, CHESHIRE, ENGLAND.

THEATER FOR LIGHT OPERA, PARIS.

M. Bernier, Architect.



PROPOSED GENERAL OFFICE BUILDING FOR GRAND TRUNK R'Y, MONTREAL, CANADA.

R. A. Waite, Architect, Buffalo, N. Y.

WHAT THE BEAUX ARTS TRAINING MEANS TO AMERICAN ARCHITECTS.

BY THEODORE WELLS PIETSCH, ARCHITECT.

THE École des Beaux Arts enjoys a world-wide reputation and uncontested preëminence as a school of art, and I may say, as concerns Americans, as a school of architecture. Painting and sculpture, though quite subject to the influence of this government institution, are not so completely controlled and directed by it. Whether a painter or sculptor is admitted to the school or not is of little or no significance. His privileges are practically the same in either case, barring a few competitions of secondary importance. Other than these, the school is as open to him as to one of its own members. He has the same rights to the ateliers, drawing and modeling rooms and lecture halls, and meets with the same favors, encouragement and incentives to success. His road to Rome is equally straight and sure, and many a Grand Prix "outsider" bears testimony to this fact.

The only questions, then, with which the painter and sculptor have to deal are (1) the choice of an atelier and (2) that of a professor. These decided, he may set to work and draw and paint and model, presenting himself at the semi-annual school examinations or not as he thinks fit, and in many cases he will not be definitely admitted to the school until he has received a medal for the competitive drawing of the human figure within the six months following the preliminary examinations. So it is that many fellows are temporarily "in" the school and out again during the current year, and yet suffer no setback in their actual progress.

The same is not true of the architectural section of the school. Here it is necessary in order that a man may advance in his work that he should be studying *in* and not *at* the Beaux Arts (as some American has cleverly put it). It is a generally recognized fact that the architect's mind should be stored with a good supply of concrete knowledge. His technical professional baggage is far more varied and comprehensive than that of the sister arts, and requires long study and a methodic training. These are requirements that the school has endeavored to meet in a programme designed to comprehend the scientific as well as the esthetic side of architecture, and its solution is given in the following way:

First. In an admission examination, the trial is such as demands considerable preparation both in mathematics and drawing. The "aspirant" is not only supposed to be thoroughly familiar with his "Vignole," he must understand the usual methods of vaulting as well. A small composition, such as entrance vestibule or portico, calling for plan, façade and section, is the usual test, and the officiating jury can be relied upon to scrutinize the work pretty carefully. No "chicy" drawing or pretty water color will forgive snags (in French, "chameaux") found in the sections.

Great importance is attached to the architectural quality of the student's mind. The question is: *does he see in space?* "Ah! que voulez-vous, il faut voir dans l'espace." One hears this the very moment he sets foot within the school's wall, and I might say that during the two succeeding years he hears little else. This will be each patron's "dernier mot" to his élèves on the day preceding the severe competitive trial. His "parting shot" is for structural designs and good proportions—"et pas de fautes dans les coupes, je vous en prie." And his advice will be much the same concerning the examinations in drawing and modeling. "Mettez votre dessin bien en place. Faites largement." Again, no amount of clever rendering will pass a badly proportioned drawing. "Get your work well placed, then interpret broadly. Get the spirit of the thing—'le sentiment.'" I have known fellows wonderfully facile in effective sketching to return from the drawing competition at the Beaux Arts classed in the lower ranks. Charmed with a bit of modeling, a shadow, or a background, they had shirked the nerve and marrow of the work; shuffled off the first principle, the structure. They were content to get that about right, "so so," and then pitch in and astonish the natives. But to their misfortune they duly found out that the surprise was indisputably theirs. This "so so," *à peu près*, is not encouraged in the school.

Such are the tests in architecture, drawing and modeling. There are with these two others, both in mathematics and history; the latter being of very secondary consideration. In mathematics much importance is attached to the problems of descriptive geometry. A man may make a sorry mess of algebraic equations and the propositions of plain geometry, and a good showing in descriptive geometry work will yet save the day. Only another proof that the Beaux Arts' "password" is "See in space."

Therefore, resuming, we may say that the successful aspirant's "stock in trade" should comprise a knowledge of elementary composition (which, by the way, is quite a different thing from an elementary knowledge of composition), a fair sense of proportion, and a tolerably good idea of values, together with a pretty thorough acquaintance with mathematics and the varied problems of descriptive geometry. This preparation fits the student for his first work in the school, the work of the second class. When he has successfully accomplished this, in the course of two years or more of study, he is advanced, without further formality, into the class above, or first class. The second class deals with the technical and scientific problems of building, though giving some attention to architectural compositions of a simpler nature; while in the first class, work is directed exclusively to design on the broadest possible lines. The study of plan is one of its great features, and the composition and grouping of vast lay-outs in a simple and logical manner and to fulfill the divers conditions of the programme are developed in a series of problems covering a wide field.

Planning is the one great question. "Study your plan, that is the secret of composition," and your professor will correct your work time and again with this remark. It is an adage of the school. First of all, the plan counts. The elevation is a matter of personal taste, and cannot be discussed along such rigid lines as the plan. Certainly one should accuse the other. We read the elevation in the plan, the plan in the elevation. "Cherchez l'expression du plan." Assuredly this only means the vertical projection of a mass that obviously corresponds to its horizontal projection. It is in no way concerned with detail. One is allowed the utmost freedom in this direction. The professor never imposes his ideas. Seek what seems the most fitting. Work in Classic, Renaissance or Gothic—Tudor even, if you like—but look higher than this, look for character.

This word *character* is what eminently qualifies French architecture today, quite as much as during the flourishing times of the middle ages and the Renaissance. I do not mean that you will find today the same wonderful florid exuberant details of those periods—that delicious and playful variety of exquisite animated carving. But French buildings still betray the clear, logical underlying thought, the adequacy of their purpose; and, perhaps, more than anything else, it is for this that the French are called the most architectural of peoples. They seem to have the true architect's feeling for the fitness of things, and avoid the plastic expressions of professional vanities. They are less tempted by the *feature*, above all by the *feature at all costs* so prevalent and contagious in our American architecture. The irrelevant is as conspicuously absent in France as it is prevalent in our cities. Things are not the rage and must be had at any price; and domes are noble, monumental things, but where's the reason to sow them broadcast over hotels, hospitals and schools? It certainly does not mean the "outward and visible sign of the inward and spiritual grace," and these are professional vanities.

In America we are subject, too, to *periodical style epidemics*. There are, have been, and perhaps still will be, architectural fads. It is scarcely ten years since we recovered from a prolonged illness of Romanesque fever, only to succumb to the hypnotic influence of a classical hallucination.

We might say, with Du Maurier, that "they manage these things better in France."

The École des Beaux Arts reflects, in so far as a school can, the general fundamental principles of architecture. It teaches the laws governing composition, the means to meet with varying conditions, the value of a clear and comprehensive programme, and, above all, the subordination of the parts to the whole. In a word, it prepares a man's mind to grasp an *architectural situation*, and this is what the training means to American architects.

The underlying principles of all art are immutable, but their application may be infinitely varied. The school can only shape the architect's mind, give direction to his trend of thought. It cannot mathematically prescribe and govern it. All latitude is allowed a man in his individual tastes; he is only asked to observe Art's golden rule of the *fitness of things*. What are commonly known as "styles" and usually so much devoid of that epithet, are never considered here. Archæology is cultivated, but not practiced. Designs in "chaste classic," "pure Italian

Renaissance," and "florid François I.," together with catastrophes in Gothic and Queen Anne, make a rare and exceptional appearance among the drawings in the school's monthly exhibitions.

There is no call for that sort of thing. This does not mean that work is not inspired from what has gone before; assuredly not, since we create nothing; but it does mean that it is not "cribbed," looking like a guilty thing caught *en flagrant délit* of plagiarism, phantom of its former self, and soulless ghost — withered, worn, and vacant, with the hollow, blank expression of vulgar crayon portraits from old daguerreotypes. Attempts to resurrect an architectural dead meet no encouragement. "Revivals" are not French, whether Gothic or otherwise, and their growth is not fostered in the school.

Perhaps it is for this reason that the claim has been made that the history of the development of architecture is not taught there. This is absurd. The school affords means to study all forms of architectural expression, and its lectures cover all known ground in the history of art. No style or period is given the preference, and no art-phase is "passed upon." An analysis is simply made, setting forth the *raison d'être*, and a résumé follows. This is all, and you must draw your own conclusions.

I know it has been said, by those making the above claim, that the Gothic is considered a mere barbarity at the school, "an aside in the course," and of doubtful value. Certainly, this was but too true thirty years ago. It does not hold water now. Viollet-le-Duc found the school wedged in a rut of exclusive classicism and rampant Neo-grec. He declared war. He fought under the standard of the middle ages (professedly not, but obviously so). Like all ardent reformers, his enthusiasm fell little short of fanaticism. His influence was a good one, for it ultimately brought about a serious modification in the old system of instruction. But had his ideas been accepted literally, the medicine might have proven worse than the disease. It has been said that of all prominent French architects, Viollet-le-Duc's personality has been felt less directly and more indirectly in the development of architecture than that of any one man. His clever pen has given new life to former ages, and swept away the cobwebs and dust of years of ignorance. But his own personal efforts in art are a crying example to show *another man gone wrong*, a victim fallen to an exclusive theory.

No, the teachings of the school are no longer exclusive. No pretention is made to inoculate young ideas with the senile virus of "styles." Study one, study all, and seek to cultivate that which appeals most strongly to your sensibility. Draw from it the seeds, which, sown, will take root, grow, bloom and flower into a living architecture, and free from the dead, numb, archæological worm.

This is the spirit of teaching at the Beaux Arts today. Is it not quite in keeping with our truly progressive American ideas?

It must be remembered that no school can furnish more than principles. The whole world is open to their application. No artists are so keenly aware of this as Frenchmen; no art so flexible, so happy to accept new conditions, as French art. Every town and hamlet in France gives proof of this. Has any other people so distinctly this trait? — this trait that I would call architectural good sense? The French mind is picturesque, but sober; *classically picturesque.* It loves scenic effects, contrasts, movement. It is the mind of a generously impulsive and impressionable people.

In France we will find no such love and respect for liberty and justice as in England and America. The recent Zola trial is a striking example of this fact. The French understand and feel the power of the community, the nation; the Anglo-Saxon, the independence and self-reliance of the individual. I think it can be said that the Frenchman's home is France; the Englishman's is his own fireside, whether it be in South Africa, India or Australia, or upon the very banks of the Thames. The relation of the individual to the State is therefore widely different in the two countries. It is manifest in the methods of governing. It is particularly manifest in the official and domestic architecture. Architectural thought is intuitively monumental in France. Only compare the farm and manor houses there with those across the channel to comprehend the radical difference in the process and result of conception. There is something about the old French work which breathes a noble classicism — that is, a breadth, quiet and simplicity — one fails to find in England.

The Anglo-Saxon, in fact, has shown himself for all times incapable of conceiving an idea of mass, grouping, the whole — what is meant by the word *ensemble.* The public buildings of England are a crying assertion hereto, and a proof that the English mind in art matters is constantly preoccupied with parts and portions, and not with the masses that should subordinate such parts. One seems to find the strong-mindedness, bluntness, and persistent self-consciousness of the race given typical expression in their building. There is no subordination or restraint. Art is flat-footed like its maker, who does not seek to charm and asks no encomium. A man is known by his company, and an English house is in perfect keeping with the mind of the master. This is often happy in English domestic architecture, but it is to be noted that within the last two hundred years that mark the decline of the aristocracy — that is, the disappearance of the Norman element in English blood — that public buildings have shown less and less those qualities of breadth and unity that are the primary essentials of monumental work.

In fact, the architecture of Italy, France and England have been humorously compared to the heads of three bald men. The first, an Italian, finding himself bald, dons a wig. The illusion is complete. Only intimate friends are aware that the gentleman is masquerading under false colors. Reference here is had to many Italian buildings whose façades are mere *placages.*

The second, the Frenchman, wishing to obviate the glare of a denuded cranium, deftly combs the longer hair from either side together. A shortcoming in nature is cleverly dissembled by skillful and natural means. And the deception is legitimate, though often incomplete. There is an analogy here with French architectural composition in that we often find a part of the whole subordinated and sacrificed to the general harmony of the ensemble. Stairways of secondary importance rarely receive recognition *en façade*, and often one window combines the "lighting of two stories." By an artifice the designer contrives to conceal what, accused, would be an ugly feature in the front.

The Englishman goes to no such painstaking. As he boldly shows his bald picked scalp to the world, so in building you will never find him hesitate to disclose with unblushing unconcern all the architectural family secrets of the interior, and stamp them with blunt frankness on the elevation. He scorns the laws of moderation and that principle of balance between parts that make a unity of the whole, and are paramount in all monumental design.

But the qualities of balance and moderation are peculiarly essential to the architectural mind, and the teachings of the school derive their chief value from the fact that they seek to instill a trend of thought in this direction and in no way concern themselves with the personal taste of the student and his individuality and temperament, all of which he is allowed to exercise untrammeled and with full liberty to select his course.

Herein we American architects have derived unquestioned benefit. Our too great prepossession for the picturesque and exaggerated silhouette has been tempered, and we have been taught to consider more wisely the values of mass and proportion. This is a healthy check to an active and robust imagination, and, far from blighting our natural individuality, will serve to nourish and cultivate the same, along firm and mature lines, and prepare the way for the coming of that day that shall print upon the face of our buildings as clearly as upon our bales of merchandise, the words of national stamp: "Made in America."

SOME PRINCIPLES OF FORM-DESIGN IN APPLIED ART.*

BY HUGH STANNUS, F.R.I.B.A.

THE avoidance of symmetricality in the wrong place is important. Some objects should have, by reason of the nature of their function, only one axis of symmetry. Places of worship are in this category; and it is interesting to observe how careful the Greeks were to prevent even the appearance of symmetricality at a wrong place, e. g., in the flank of a temple. The entrance to the naos or opisthodomos was always in the center of the end, i. e., axial with the center of the pediment; hence the number of columns at the ends of temples (with two, or perhaps three, exceptions) was always an *even* number; and the eye intuitively seeks and finds, in the void (between the two columns nearest the center), the axis of symmetry, and there is content to rest. But in the flank of the temple there is (with one exception) no entrance, and no axis of symmetry; hence the avoidance of an *even* number of columns, so that the eye may not be drawn to a central void and perplexed.

Disregard of this avoidance is a blemish in the external flank elevations of the otherwise beautiful little church of St. Mary-le-

*Lectures delivered February 14, 21, 28, and March, 1898, before the Society of Arts, London, England, commenced in December number.

Strand, in London, the southern flank of which is shown in Fig. 9. Here, it will be observed, the third nave window is treated with columns, entablature, and segmental pediment, and the first and fifth are treated with angular pediments; and all are thereby made into axial features. This treatment not only destroys the breadth of the composition, but it dignifies, as centers of symmetricality, three windows which should not be axial in any manner, and it thereby militates against the chief and only axis of the church, i. e., from the entrance door to the communion table.

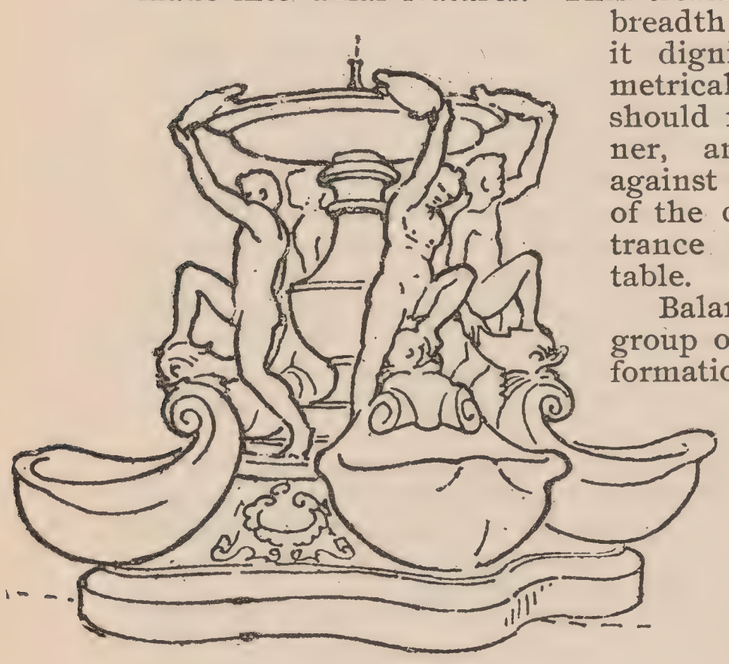


FIG. 14.

Balance is the second of the group of laws which govern conformation and attitude. The term is derived from a Latin word which signifies the quality of being weighed, and of preserving the equilibrium of the weighing beam. Obviously two objects or sets of objects may balance each other and yet be very different in form. So, also, in applied art the two portions of an object on each side of an imaginary vertical line passing through its center of gravity may have the same weight, and, although very different in form and apparent bulk, may yet balance each other.

Examples are seen: In nature, in every forest tree; they are not symmetrical, and without balance they could not remain erect; there is, approximately, an equal weight of branches in all directions, to enable the tree to maintain its equilibrium; and those trees which, by stress of the elements, have lost branches or lean over on one side show that they have lost equilibrium, and the trunk is in strain. In the animal kingdom, every erect movement shows the effect of this law, or otherwise the animal would fall to the ground. In external architecture, most dwelling houses — if designed according to the function of each room — will exhibit the effect of this law rather than that of symmetricality. In sculpture: almost every isolated statue (an extreme case, Fig. 10, is seen in the bronze equestrian statue of Peter the Great, at Petersburg, in Russia, in which, by the expedient of varying the thickness of the metal — making it heavier in the hind quarters of the horse and very light in the fore quarters and the figure of the man, and by making the hind legs solid and attaching them and the tail to the serpent — the whole is partly balanced and partly tied down). In typography: the ordinary capital letters B, D, G, M, N, Q, R, S, W, X, Z. In mechanics, everyone who has observed the machinery behind the dial of a large clock will have seen the counterpoise weights fixed to the pinion in an opposite direction to the hands, for the purpose of balancing their weight. And so forth.

FIG. 16.

The application of this law will be treated of more fully in the law of stability, *q. v.*, and in that of reciprocality, *seq.*

Reciprocality is the third of the group of laws which govern conformation and attitude. The term is derived from a Latin word which signifies the act of taking (a step) backward and forward. In mechanics, all motions which are repeated in alternately opposite directions, e. g., the piston stroke, the beam libration, the pendulum oscillation, etc., are termed reciprocal. So, in applied art, one object that has an attitude the exact reverse of another, is said to be symmetrical to the other; e. g., the pair of imitation Egyptian sphinxes that face each other by the obelisk on the Thames embankment, in London, or the couchant spaniels, made in pottery, that are seen in pairs on the mantelpiece in rural cottages.

In separate objects or features that are pairs, i. e., the exact reverse of each other, the term used is "reciprocality"; but when the pair are parts of the same object, i. e., are equal reversed halves of it, then the term used is "symmetry," and it is applied to the whole object. Thus an ear, considered by itself, is unsymmetrical, but is reciprocal to the other ear; while the complete head, including the pair of ears, is symmetrical (in the reversed identity of its two equal halves). So, also, in the temple on Ægina, the acroterium at one end of the pediment (Fig. 11) is

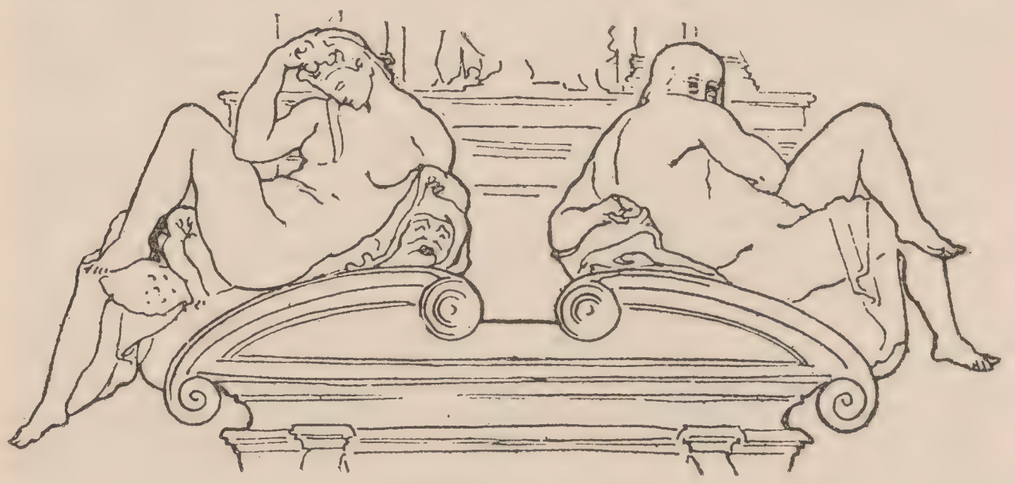


FIG. 15.

reciprocal to the one at the other end, while the whole pediment, including all the acroteria, is said to be symmetrical.

Examples are seen: In nature, each feature, e. g., ear, nostril, arm, hand, leg, foot, of which the animal is endowed with a pair, is unsymmetrical in itself, but is reciprocal to the other corresponding feature; and each feature, e. g., forehead, mouth, chin, of which the animal is endowed with only one, is symmetrical. In architecture examples have been given, but the front of the Cathedral at Litchfield may be adduced as a very artistic example, the bulk of the two towers being increased on each outer side, and thus not only avoiding a secondary axis, but making the two towers reciprocal. In sculpture, the figure and horses on the Quirinal at Rome (Fig 12), also those in the Capitolino (Fig. 13), the figures of the Tartarughe Fountain, also situated at Rome (Fig. 14), of which one pair of figures was modeled, and two casts in bronze of each figure, making four in all, were arranged alternately, as shown. The figures of the Korai, of the Pandroseion at Athens, are another instance of this law, the three on the eastern half being represented as resting on the left leg, and the three on the western half on the right leg.

Abuses sometimes result from applying this law too severely. An example may be seen in the Untersachsenhausen at Koeln, where, in a pair of Cyclops supporting a projecting bay, one of

FIG. 17.

them is left-handed in order to be strictly reciprocal. Some of the shields in one of the chapels at Rimini are provided with the bouche on the sinister side, as if for left-handed persons, for the same reason.

A free treatment, which is also more sensible, is shown in the figures on the tombs in S. Lorenzo, at Florence, by Michel Angelo (Fig. 15), in which, while the architectural features are strictly reciprocal, the sculptural figures are only reciprocal in mass form, i. e., quasi-reciprocal. The group of Karl der Grosse (Fig. 16) is also free; but the men that hold the bridle are "out of step" as a concession to reciprocality that was not required. The groups of virgins at the ends of the tympanum in Fig. 17 are quasi-reciprocal, and gain much from the freedom. Most tympanum sculpture is arranged in a quasi-reciprocal manner, and the pairs of recumbent figures that were fashionable on pediments after Michel Angelo had set the example afford numerous examples of this free treatment.

(*To be continued.*)

PAINT.*

BY GORHAM B. COFFIN.

IN accepting the invitation to address the Chicago Architectural Club upon the subject of paint, or rather what constitutes a good preservative for the exterior of wood and iron, I deeply appreciate the importance of the subject; first, as it applies to myself, having spent the greater portion of my life in the manufacture and sale of paints and colors, and secondly, as it applies to you, who perhaps find the finishing or painting of a building the most confusing thing that you have to deal with.

When your committee invited me to talk on a subject that has given me my bread and butter for so many years, I hesitated before accepting the invitation, because I realized that I was placing myself in your power. In fact, paint manufacturers, speaking for the trade that I have the honor to represent, are in your power, although it probably seems to you the reverse, that you are in our hands, and have always bought or specified a "pig in a bag" when you attempted to dictate what kind of paint

* A talk before the Chicago Architectural Club, Monday, December 12, 1898.

material should be used on a certain building, relying upon the honor of the manufacturer whose goods you had found to be entirely satisfactory in the past.

Permit me to say that the suggestions I may offer here are simply ideas or thoughts from a practical point of view, and so I will not indulge in theory or attempt to give you an essay on chemistry. I have said that we were in your hands. This is absolutely true, for when you specify just what brand of paint or varnish shall be used on a certain piece of work, you select one out of many manufacturers' brands, the many are ignored, although among the number may be those who for years have given the subject their best thought in order to accomplish just the result you are looking for.

Have we progressed the last one hundred years in the paint business or not? That is the question. From the way your *specifications* generally read we have not—it is the same old story; but let me tell you that our industry has kept pace with other lines of trade in the matter of employing large capital, greatly improved machinery, skill in combining pigments and the improved methods of application. We do not consider that because a surface is covered well and has a beautiful tint or finish that it is worth what you have paid for it. No. "Beauty is but skin deep." There is as much or more in the application of paint as there is in the quality.

First see that a responsible painter is doing your work, for the patronage of such men is sought after by honorable manufacturers. The tendency among a large class of painters is to get through with the job and get their money, regardless of the wearing qualities of the paint. A painter will tell you that certain brands of white lead or varnish are the best, but why they are the best is a question they can rarely answer except to say that they have used the same goods before and found them all right; but I am not here to criticise our friends, for the painters are the people who consume our products. I can only speak of that which in my humble opinion makes a perfect paint. What has been produced in the past is one thing—what is produced now is another. Improvement refers to the present and the future, the past is simply what has been.

We all know that the two important products in the paint industry are white lead and linseed oil. They represent the greatest amount of money invested. White lead is the pigment and linseed oil is the vehicle. The pigment without the vehicle is of no more value in paint than sand. The machinery, therefore, that will join these two together, so that they will become a perfect paint is where improvement lies.

Today the most perfect combination is obtained by first kneading the dough, as it were—that is, taking a large percentage of dry white lead and a small percentage of linseed oil and kneading them together under heavy rollers. This dough is then put into mixers with more oil added; from there it is fed into large burr stone mills, where it is ground to a perfect degree of fineness; then it is cooled by passing into another mixer from which it is drawn into kegs ready for the market.

The corroding process of making the dry white lead from the blue or pig lead is the same as has been in use for a century, namely, melting the lead into buckles, then putting these buckles into small earthen jars with acid in the bottom. These jars are then placed in layers, each layer covered with boards, then covered with tanbark and piled one on top of the other until a stack is built. After remaining three months the lead becomes corroded. Then the jars are emptied, and by the use of separating machinery the blue lead, if any remains, is thrown aside and the white lead ground in water, then run into drying pans, the water evaporated, and the dry lead then becomes ready for grinding in linseed oil. This is by far the most important feature. The perfect grinding of lead requires the most improved machinery.

The grinding of colors also today demands complicated mills which are really models of perfection as compared with the old-fashioned way of grinding.

White lead or colors perfectly ground in linseed oil, then reduced or made ready for the brush and run through mills again, produce the most perfect prepared paint, and will go over more surface and cover that surface better than any paint a painter can stir up by hand.

The paint now on the market made by reputable manufacturers is a great improvement over any that has been made in the past. This is absolutely true; and you, as architects, if you will look into the matter by paying a visit to any of the larger factories, either individually or in a body, can see for yourselves the great improvements made in recent years over the old way of making paints.

The inspection of a first-class paint manufacturing plant would reveal to you the great care that must be taken in order to produce a good paint. We do not wait until a complaint comes in regarding the quality of the colors or paints we have produced, but employ as superintendents of the various departments men who have had years of experience, whose duty it is to thoroughly inspect every day's production to see that it is perfect. The mills, hundreds in number, are so regulated that beyond a certain point they cannot go. Each must do its share of work, however, and do it perfectly. Every hour's work is recorded, and an exact quantity of color, whatever the mill is capable of grinding, must be produced. Men are employed whose *only* duty is to see that the stones of each mill are kept sharpened to a certain degree, so that the goods manufactured are of an even quality and fineness. The machinery of a well regulated plant requires the services of an engineer of unusual ability, who employs several assistants. Their duty is to see that all machinery is kept in perfect running order. You may readily understand when I say that all mills, of whatever caliber, require a water attachment that provides for running water surrounding the stones or steel plates, in order to keep the mills perfectly cool, thereby preventing the spoiling of a color by overheating; hence the great care necessary on the part of the engineers.

Chemists are a very important acquisition in the manufacture of paint. It is their duty to first formulate the products, particularly the chemical colors, such as chrome yellow, chrome green, vermilion, etc. These goods are made in large quantities, and used extensively by agricultural implement manufacturers, railroads and carriage builders. The colors are also used for tinting, and are ground in oil or japan, and put up in small cans for the convenience of the painter. A large space is required for the manufacture of this class of paints. The chemists pass upon the correctness of shade and the purity of the output. They also are expected to determine the value of all samples of paint sent to the manufacturer to *match* so that an intelligent price can be made.

Take the entire organization, including the manufacture of many specialties incident to the paint trade, such as wood stains, wood fillers, prepared paint, etc.—all go to make up a very interesting aggregation; and so, as I before suggested, a visit on your part would be worth your consideration and attention.

Painting is and always will be a mystery. You can only get good results by seeing to it that the contractor who does your work uses the products of some honorable manufacturer, who is never ashamed to put his name upon what he makes. The painting trade is not an inviting occupation for any young man, and this accounts largely for the great number of unskilled men calling themselves mechanics in this branch of business. Trade schools such as they have in the East are excellent and should be indorsed by such organizations as yours.

Architectural or structural iron is usually painted with some cheap paint. This should not be, when it is so easy to find a paint that has stood the test of years of exposure. In my opinion, red lead, which is so often specified for iron or steel, is not a good paint, for the simple reason that red lead will carry less linseed oil than any other pigment, and linseed oil is the lifeblood of all paint. Graphite, which it has recently been discovered makes a good paint, is not perfect alone; but when combined with another pigment that any competent manufacturer would use to *perfect* it, and then properly incorporated with linseed oil, makes without doubt the best paint for protecting iron or steel that has yet been discovered.

White lead alone is not a perfect paint; in fact, many makers produce a paint in a prepared form that will outwear it two to one. The application, as I said in the beginning, is all-important; the *surface* to be painted is then taken into consideration by the painter who understands his business, which insures a lasting result.

"Indestructible paint" is now in use, but that you don't want to advocate, because we poor paint men would rather have the paint wear out sometime, so that our business may not die an unnatural death.

Paint on a building should wear like a grindstone—wear off by easy stages—not flake off, which will be the case if the pigment is brittle and very hard, neither should it chalk off in a short time, which indicates a soft pigment and lifeless oil. A perfect paint should be elastic enough to withstand contraction and expansion and hard enough to take the wear and tear of the elements and the natural abuse it is bound to receive in the course of time.

In closing, you may conclude that I have said something about what should be, but have not presented any plan as to how to improve the situation. This I could not do without telling you what paints now on the market are best to use. This would seem like advertising the product of some particular manufacture, which is not what I am here to do. But the fact remains that by paying the price, or even at the same price, prominent makers have paints on the market today that are far superior to the old-fashioned goods, both as to working properties and durability.

THE EXPOSITION AND CONGRESS OF ARCHITECTS AT BRUSSELS, 1897.

THE Exposition of 1897 at Brussels in the literary and printing departments saw fit to award medals and a diploma to THE INLAND ARCHITECT for excellence as a technical journal and for its typography. The report of the United States representative at the Congress of Architects held in Brussels during the Exposition has just been published, and the following abstract is reproduced because of its bearing on an important phase of our architectural transition and the opinion of eminent architects contained therein. That explaining English methods only is given, through lack of space:

REPORT UPON THE FOURTH INTERNATIONAL CONGRESS OF ARCHITECTS, BRUSSELS, 1897.

The Honorable the Secretary of the Treasury:

SIR,—In addition to my verbal reports of the Fourth International Congress of Architects, made upon my return to the Hon. F. A. Vanderlip, I have the honor to submit the following, together with the official report of the Congress, which I have just received:

In accordance with your instructions contained in letter of June 24, 1897, I sailed on August 11 for Brussels. Arriving a few

days before the opening of the Congress, I had the opportunity of meeting a number of Belgian architects, and of paying my respects to our minister, the Hon. Bellamy Storer. Mr. Storer kindly placed his secretary, Mr. Snyers, at my disposal, and I am greatly indebted to both these gentlemen for their valuable assistance.

The formal opening of the Congress took place Sunday afternoon, August 29, in the Salle de Science of the Palais des Académies.

I shall not enter upon the details of the proceedings, as they are fully given in the accompanying official report.

Before the close of the Congress I read a paper, of which the following is a translation :

Our president has kindly allowed me this opportunity to bring before you a subject which in the United States is one of much controversy and of great public interest. I wish to speak of Government architecture—that is to say, buildings erected for the use of the Federal Government.

The subject is a vast one, and one upon which a great deal could be said—much more than is possible in the few moments at my disposal. Hence, I shall be careful not to enter into a detailed discussion.

By Government architecture one understands in America the construction of such buildings as post offices, customhouses, mints, courthouses, etc. Our earliest public buildings, the Capitol and the White House (the residence of the President of the United States), were constructed by private architects, and it was not until about 1850 that it was decided to organize a central bureau, attached to the Treasury Department, which was charged with the preparation of plans of all Federal buildings.

At this time architecture was but little appreciated among us, and the work executed in this bureau was at first more the work of the engineer than of the architect. Since then the progress realized has been very great, and I would like to show you, in a mere outline, the workings of this bureau, hoping that it may be of some interest to you.

After our Congress has made the necessary appropriation for the erection of a public building, the bureau chooses the site and investigates its requirements, makes the design, prepares the working drawings, and superintends the work.

As a working organization this bureau is truly remarkable. It is divided into eight divisions, comprising in all about one hundred and fifty employes, all under the direction of an architect. Too often, unfortunately, this architect owes his appointment to political influences ; but were he really a genius, the administration alone of the bureau is so enormous he has but little time at his disposal to study the problems in design. I am glad to say, however, it is generally admitted that the work executed under the direction of the last Supervising Architect was quite remarkable ; still the sentiment of our architects is that the system is bad and that our Government architecture is inferior to that executed by our private architects.

It is the desire of Mr. Gage, our present Secretary of the Treasury, to reform the system, that Government architecture may serve as a model, as an inspiration to architects.

With this point in view, there seems to be but three general systems to arrive at the desired result :

First. To confide the entire work to a general bureau, under the direction of an architect, such as the office of the Supervising Architect.

Second. To have the work directly executed by a private architect. This method has the advantage of assuring a more careful study of the problems and the personal supervision of the architect during their execution. It presents, nevertheless, the danger of opening the field to favoritism, and he who would receive the work might not be the best architect, but the one with the greatest influence.

Third. To award the work in a public or private competition. This method promises the best results, and Secretary Gage proposes to try it immediately.

We are in the infancy of art and desirous of profiting by the experience of the official delegates and the other members present. We shall be greatly obliged if they will explain briefly the methods employed by their respective governments, and give us their personal opinion as to the best system to adopt in order to arrive at the best results.

I am not authorized by my Government to introduce this subject in the deliberations of the Congress. I do it simply as an American, as an architect who has searched for the most efficacious means of affording an opportunity to the talent which he knows exists among the colleagues of his native land, so that some day they may create monuments as grand as those which the genius of their elder European brothers have given to the admiration of the world.

The subject was referred to a special commission, composed of the following members : Messrs. Aitchison, England ; Betocchi, Italy ; Battigny, France ; Cuypers, Holland ; Cleson, Sweden ; de Suzor, Russia ; Hickeldeyn and Stübben, Germany ; and Wagner, Austria, which rendered the following decision :

"It is desirable that the construction of public buildings shall be confided to private architects chosen by public or private competition or otherwise, and that the architects superintend the erection of the works, but under the direction of the Government."

After the commission rendered the above decision, I requested each member to kindly give me his personal views on the subject.

The following letters are their replies :

150 HARLEY STREET, W. LONDON, December 9, 1897.

DEAR SIR,—In answer to the remarks you made before the Congress at Brussels and to the notice of it you have been kind enough to send me, I beg to say that the method adopted when the Houses of Parliament were to be rebuilt was an open competition, when Sir Charles Barry, R.A., was chosen as the architect.

When the foreign and Indian offices were rebuilt an open competition was held and the work was allotted to Sir G. Gilbert Scott, R.A., and Mr. M. Digby Wyatt.

When the new law courts were to be built there was a limited competition and Mr. Edward M. Barry, R.A., was chosen, but Mr. G. E. Street, R.A., having more influence, got it for himself, and the work was done from his design.

There was also a select competition for the Imperial Institute, which was gained by Mr. Colcutt, who was the architect to the building.

For the new Admiralty buildings there was an open competition, from which the architects whose designs were most approved entered into a second select competition, and this was gained by Messrs. Leaming & Leaming, who designed the present building.

There is, however, a board of works, and Sir John Taylor, the head architect of the department, designed the new building in aid of the general post office in St. Martins Le Grand, London, and most of the provincial post offices. Subsequently another supplementary building for the use of the post office was designed and carried out by Mr. H. Tanner, one of the architects under Sir John Taylor. These buildings are separate structures on the opposite side of the street to the old general post office.

When the competition for the completion of the Kensington Museum took place, the Royal Institute of British Architects were asked by the minister to nominate six of the best architects, and did so, and added a number of names as well, a few others being added by the minister, and the architect appointed was Mr. Aston Webb. This work, however, has not as yet been begun.

The Natural History Museum was, I believe, given to Mr. A. Waterhouse, R.A., by the minister of that day, without competition.

It is, I believe, intended shortly to rebuild some of our public buildings in Whitehall, and I understand that a select number of architects will be asked to compete. In the case of select competitions a certain sum is paid to each of the competing architects to defray the cost of his time and expenditure. I may say that, as a rule, in all the competitions the architect whose design has been approved has been one of the foremost men in his profession, and the

EXPOSITION INTERNATIONALE
DE BRUXELLES 1897
Sous le Haut Patronage de S.M.
le Roi des Belges
& Sous la Présidence d'Honneur de S.A.R.
Mgr le Comte de Flandre
Classes 74 à 78.
Jury d'Examen, N° 25.
Imprimerie et Industries du Livre.
DIPLÔME
DE MÉDAILLE D'ARGENT
The Inland Architect à Chicago
Bruxelles, le 11 Septembre 1897
Le Commissaire pour le Jury
à les Récompenses
Le Commissaire Général
du Gouvernement
Le Président du Comité
Exécutif
Le Ministre de l'Industrie & du Travail
Président du Jury Supérieur

only case during my professional lifetime of an open competition for an important public building unearthing an unknown genius was the competition for St. George's Hall, at Liverpool; the late Mr. H. L. Elmes being before unknown to the architectural profession and to the public.

So little is known of the high and rare powers required for the creation of important monuments in our art, and of the importance of the architect being free from other cares to produce a well-considered design, that it is supposed that the noblest architectural creations can be conceived in the spare time of a man wholly occupied with the valuation of the price of land or other irrelevant occupation.

It seems that the best and fairest plan is to make a selection from those architects who have already distinguished themselves, to pay them for their work in competing, and to have the merits of the design judged of by the

SILVER MEDAL AWARDED THE INLAND ARCHITECT AT THE BRUSSELS INTERNATIONAL EXPOSITION OF 1897.

A Bronze Medal of Honor was also awarded.

most eminent architect of the day. Architects of well-known ability can alone judge of the merits of architectural designs.

Your M. Leopold Eidlitz, in his book on "The Nature and Function of Art," has well explained the value of the judgment on architectural designs of those who are not architects.

I have answered your questions rather by implication than directly, so I will say that architects having official duties to perform are not as a rule found to be so capable of producing imposing public buildings as those constantly engaged in the designing and carrying out of pure architecture.

Yours faithfully, GEORGE AITCHISON, A.R.A.,
Professor of Architecture at the Royal Academy of Arts.

MR. G. O. TOTTEN, JR.,
Architect, Legation of the United States, Brussels.

150 HARLEY STREET, W., LONDON.

* * * * * * * *

I am glad that my letter was what you wanted. . . . Except the occurrence of genius, the two most important factors in the production of good architecture are a good character for the architects, and a knowledge and love of architecture by the nation, and I am inclined to think that the last is of overwhelming importance. Men of genius somehow educate themselves if the air is full of real admiration and desire for any fine art. There were no particular schools of poetry when Milton and Tennyson wrote, and Milton got pieces of waste paper for his Paradise Lost, so he was not tempted by money. You may recollect Swift's remark that "We can see the value the Almighty places on wealth when we see the people he has given it to."

* * * * * * * *

MR. G. O. TOTTEN, JR. G. AITCHISON.

In addition to these letters, I discussed the matter with many of the members of the Congress, and they were unanimously in favor of competitions for obtaining designs. Notwithstanding this, I feel that they do not fully appreciate the possibilities of this office. As far as I have been able to learn, it is the largest and best organized architectural office in existence, and I have the firm confidence and belief that it can and will produce works of real merit. Yet I think its scope is somewhat limited, for, judging from past experience, the head of this Bureau will still be subject to frequent changes, in which case the larger Government works, requiring a long time for completion, would of necessity be under several successive architects. This is unfortunate, for the successive men, each trying to improve on the work of his predecessor, and perhaps not fully understanding his point of view, would produce in the end composite works which would be discreditable to our Government. Therefore I believe such works might better be under the supervision of a private or single architect, such architect to be appointed or the designs to be selected in competition.

Very respectfully, GEORGE OAKLEY TOTTEN, JR.

ARCHITECTURAL LEAGUE OF NEW YORK COMPETITIONS.

COMPETITIONS to be held under the auspices of the Architectural League of New York for the season 1898–99 are announced and comprise the competition for the gold and silver medals, the Avery prize and the President's prize. The general instructions about the competitions are as follows:

Each sheet must be distinguished by a cipher, a plain sealed envelope bearing the cipher, and containing the cipher with full name and address of authors, and, in addition, for the gold and silver medals competition, the place and date of birth of author, must be mailed to the Committee on Competitions at the League office, and all drawings are to be delivered without glass or frame, carriage paid, on or before January 16, 1899, at the rooms of the Architectural League, No. 215 West Fifty-seventh street, New York City, addressed to Committee on Competitions.

All designs complying with the conditions will be hung in the League rooms at the forthcoming exhibition, prize drawings being so indicated.

At the close of the exhibition the designs to be removed at the expense of owners. All awards of prizes will be made at the annual dinner of the League. The recipients of the awards to be the guests of the League on this occasion.

These competitions to be held under the general rules governing competitions, and are conducted and judged by the Committee on Competitions and Awards.

CONDITIONS.

1. The competitors must be residents of the United States, and under the age of thirty.

2. All drawings shall be made in conformity with the following programme:

All the designs submitted shall be the exclusive individual work of the contestants, and no studio or other collaborated work will be received.

If the work of any of the contestants be challenged, as being other than as here understood or implied, the contestant so challenged must disprove the charge, or he will become ineligible for any of the awards of this competition.

Reviewing Stands and Public Grand Stands, Arches, etc.— Temporary Structures Required for the Purpose of Reviewing an Army Returning from Foreign Service.—The site assumed is Riverside Park, in the vicinity of Grant's tomb, about 950 feet north and south, and about 450 feet east to west in total extent.

The chief problem is the plan arrangement. It is desired to show how a well-considered design may produce, with the customary materials, an imposing and convenient composition, instead of the inartistic and unorderly results of recent work of the kind.

Therefore, the principal stands only will be roofed, and only these and the triumphal arches can have any architectural superstructure; and all such work must be simple and inexpensive, and easily built and removed; the remaining public stands being ornamented only on their front parapets and ends, and relying for their effects upon the masses of people and such accessories as flags and trophies. Triumphal arches, not more than two, may be introduced.

The points to be first considered are: The access and egress of the officials and of the public, the orderly movement of crowds, and the approach and passage and dismissal of troops. Consideration must be given to police, ambulance, fire department and carriage service.

Drawings required: A general plan and a general elevation to scale of 32 feet to an inch upon a sheet of paper (not card), 26 inches by 39 inches (or a little less) unmounted.

The drawings to be rendered in colors.

AVERY PRIZE.

Open to all residents of the United States. A prize of fifty dollars ($50.00) will be awarded for the best design.

Design for a War Medal for Decoration of Soldiers in Commemoration of Santiago, 1898.— It is suggested that forms other than the plain circular might be available, and might have advantage in giving distinctive character protected by copyright or other law, but all designs must be in accord with the artistic and mechanical limitations of the numismatic arts of die-sinking and medal striking. No cast or galvanic or hand work process will be admissible.

The design to be shown by a model of obverse in relief, of diameter four times the real size; the reverse is not required.

PRESIDENT'S PRIZE.

Open to members of the Architectural League only. The president of the League offers a bronze medal, to be awarded to the best *Design for a Poster for the League Exhibition, 1899* — The prize design, if suitable in the opinion of the committee, will be purchased at the price of $25 and forwarded to the Exhibition Committee for actual use, and the designer's name is to be placed upon it before publication.

The design to be shown upon a sheet of paper or card, unmounted, 21 inches by 28 inches, for reduction to 14 inches by 19 inches, and to be composed of the color of the paper (which may be applied in the case of the drawing) and one other color only. White or black, if used, must be counted as colors.

ROBERT W. GIBSON, Chairman,
WILLIAM A. BORING,
DANIEL C. FRENCH,
Committee.

DAYLIGHT AS AN INVESTMENT.

A GOOD example of the value of light and gain in floor space in this advancing age is represented in the letting of a contract on the Schlesinger & Mayer new building for Luxfer prisms to the amount of some $40,000. It is quite agreed that the additional gain in floor space alone by the use of Luxfer prisms, not counting the saving in gas and electric lighting, will pay for this investment in less than two years, in addition to giving perfect daylight to every point on the great floors of this new edifice about to be erected by Louis H. Sullivan, architect, and Dankmar Adler, engineer.

One can but applaud and compliment the efforts of the Luxfer Prism Company in placing the value of their prisms before the architectural world in the short two years of their existence in the manner they have by practical demonstration of their adaptability, ornamentation and value to architecture of the day.

OUR ILLUSTRATIONS.

Theater for Light Opera, Paris. M. Bernier, architect.

Armory and Gymnasium, Ohio State University. Yost & Packard, architects, Columbus, Ohio. The exterior and view in Drill Hall are shown.

The following views in Southern California are shown: Winter Home of D. R. Cameron; Residence of D. M. Smyth; Residence of Dr. Fenyes; Smoking Room, Winter Residence, A. McNally.

Proposed General Office Building for Grand Trunk Railway, Montreal, Canada. R. A. Waite, architect, Buffalo.

The proposed General Offices of the Grand Trunk Railway System, which are to be erected in the city of Montreal, will occupy the entire square bounded by McGill, St. Paul, William and Jubilee streets. The total area of the building will cover a space of 30,000 feet. The edifice will occupy a frontage of 200 feet with a depth of 135 feet. As will be seen by the illustration which appears in this issue, the building will take first rank with structures erected for similar purposes on the continent of America. The style is Neo-Grec, being a modern adaptation of Greek and Roman architecture. The plans have been prepared with a view to give a good light in all apartments, combined with striking adaptation to the complex requirements, as well as an effective appearance. The high basement is allotted to the railway mail, janitor and storage rooms, having separate entrances. Also in this part of the building will be distinct boiler, engine and coal rooms located separately from the main building. The ground floor is arranged for the Treasurer and Paymaster's office, and Audit departments, the whole requiring an area of over 16,000 feet. The first floor will be occupied by the General Purchasing Agent, Division Freight Agent, Freight Claims Agent and Auditor. The second floor will contain the General Manager's office, General Assistant's office, General Traffic Manager's office, General Passenger and Ticket and Advertising departments, General Freight department and General Solicitor's office. On the third floor will be the General Superintendent, Chief Engineer, Car Service Agent, General Car Accountant and Telegraph and Telephone departments. Fourth story will be assembly rooms, Superannuation, Medical and Stationery departments.

Bramhall Hall, near Stockport, Cheshire, England.

All authorities unite in the selection of Bramhall Hall as probably the finest example of its peculiar style of architecture, the timber and mortar or "magpie." Professor Grindon says that it "is unquestionably the most beautiful building of its kind within many miles of Manchester," and that "it would be difficult indeed to match it in any part of England. Placed most picturesquely upon the brow of a gentle incline and of very considerable length, it presents a remarkably fine example of the ancient black-and-white style of architecture, with gables, windows and other parts and adjuncts all in admirable harmony and in perfect preservation." Mrs. Green, in the notes on the illustrations to her husband's "History of England," says that "Bramhall House is one of the finest examples of an English timbered mansion." Earwaker and Ormerod, in their histories of Cheshire, and Thomas Nash in his "Mansions of England," are equally pronounced in this opinion. T. Raffles Davison, the British architect, speaks of it as "long the delight of artists," and testifies that "few of the old halls of England can boast more picturesque beauty than Bramhall Hall."

Mrs. Green, in copying the illustrations of Bramhall Hall from Earwaker's "East Cheshire," is incorrect in saying that it was begun in the fifteenth century, and also in the statement that the arms on the shield carved on the bracket of the projecting oriel window of the banqueting hall are those of the Davenports, to whom Bramhall belongs. The arms referred to are those of the Bramhalls, and date back of the fifteenth century; for the Bramhalls came over from Normandy at or before the Conquest, and Sir Geoffrey de Bramhall, son of Sir Richard, was born in 1278, and left the hall to his only child, Alice, who married John Davenport in 1379. It has since been held by the Davenports until 1877, when it was sold for £190,000, and is now the residence of Mr. Charles H. Nevill.

It was doubtless completed, as stated by Earwaker, about 1590, by the construction of a gallery running the whole length of the house on the second floor, and which was taken down in the present century. The picture in Green's History shows this gallery, but it does not appear in our illustrations reproduced from recent photographs by Charles Simms & Co. Davison states, too, that the original Hall was built around a courtyard, but that one side of it was taken down in the last century. No part of it is more recent than the time of Queen Elizabeth, except where slight modern repairs have been requisite.

We are quite sure that our readers will appreciate the fine illustrations that we have been able to secure of this picturesque old mansion, through the courtesy of Mr. Frank J. Bramhall, of Chicago.

No. 1 is the southeast view, showing the terrace front which Mr. Davison speaks of as "almost without parallel in variety and charm."

No. 2 is the great dining hall, paneled and wainscoted with oak, and with the family arms carved over the mantel. There was formerly a "right of way" through this hall, and upon a table was always placed bread and cheese and a large leathern bottle (or jack) of ale. Two of these may be seen on the old oaken sideboard.

No. 3, the drawing-room, is wainscoted with oak, and carved above the mantel are the royal arms of Queen Elizabeth, wrought in blue and gold upon a white ground, with the Norman-French motto, "Vive la Royne." One tradition is that this was presented by the Queen; another, that it, with the stucco ceiling, was erected in preparation of the Queen's visit to Bramhall.

No. 4, the plaster room, so called from its having a floor of that material — 1599. It contains many relics of Cromwell's army and other objects of interest.

No. 5, the old banqueting hall, now used as a drawing-room. The roof is divided into six bays or compartments by massive timbers. At one end is a fine old carved sideboard, at the other a beautiful tapestry illustrating the Adoration of the Magi.

Photogravure Plate: Front View, Residence of Alfred H. Granger, Lake Forest, Illinois. Alfred H. Granger, architect, Chicago.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Apartment Building, Chicago, Frank L. Wright, architect. General view and detail view are shown.

View in Library, Residence of T. H. McKittrick, St. Louis, Missouri. Shepley, Rutan & Coolidge, architects.

Residence of Frederick I. Carpenter, Chicago. Pond & Pond, architects. View in Library and View in Dining Room are shown.

Side View of Residence of Alfred H. Granger, Lake Forest, Illinois. Alfred H. Granger, architect. View in Library is also shown.

Corrections: Plate in last number entitled: "A Colonial Residence" is Residence of Dr. A. M. Curtiss, Buffalo, New York. James A. Johnson, architect.

Plate in last number entitled: "Residence of S. A. Griggs, Detroit; Nettleton & Kahn, architects," is Residence of William J. Bulger, Chicago, H. R. Wilson and B. H. Marshall, architects.

ARCHITECTURAL SCHOOLS.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

The annual report of President Craft, of the Massachusetts Institute of Technology, shows that the institute has received through bequests and gifts almost a million of dollars during the past year, the sum being $968,682. The expense of tuition per student is $330 per year, and the fee $200. The total number of students was 1,171, as against 1,198 the preceding year. The departments of civil and mechanical engineering, architecture, naval architecture, etc., have benefited by the erection of the Pierce building, in increased space, better light, and particularly in having rooms especially adapted to the wants of these departments.

UNIVERSITY OF PENNSYLVANIA.

The Courses in Design in the School of Architecture, University of Pennsylvania, have been placed in charge of Mr. Frank Edson Perkins, a diplome of the Ecole des Beaux Arts, and a graduate of the Massachusetts Institute of Technology.

Mr. Perkins' appointment is the outcome of many months of careful search on the part of Professor Laird for an instructor qualified to maintain the character of work in Design for which the school at Pennsylvania has become widely known. That the appointment will accomplish this end is assumed by the brilliant record with which Mr. Perkins completed the long and severe course of study in the schools. He will bring to the service of the university an exceptional natural ability in design, developed under the most thorough and scholarly training known in architectural education, and combined with teaching capacity and a knowledge of the actual conditions of professional practice.

Mr. Perkins succeeds to the Assistant Professorship in Design held for the past five years by Mr. Edgar V. Seeler, and will assume entire charge of the work in design, the junior year of which has been for three years past under the instruction of Mr. Frederick M. Mann. Both Messrs. Seeler and Mann have, in pursuance of a settled intention, withdrawn from university work to give their entire time to professional practice, in which each has been engaged during the period of university service. To Mr. Seeler's rare attainments as artist and instructor, and to the able coöperation of Mr. Mann, are due the high standing of the design courses at Pennsylvania, and the withdrawal of these instructors will be felt as a great loss in all their university relations.

ASSOCIATION NOTES.

ARCHITECTURAL LEAGUE OF NEW YORK.

The fourteenth annual exhibition of the Architectural League of New York will be held in the building of the American Fine Arts Society, 215 West Fifty-seventh street, New York, opening on February 9 and closing March 6, 1899. The last day for the reception of exhibits will be February 2, the annual dinner of the League February 9, League Reception February 10, and the public exhibition from Saturday, February 11, to Saturday, March 4, inclusive of Sundays. There will be public lectures February 15 and March 1, and on Tuesdays and Thursdays an admission fee will be charged; all other days the exhibition will be free. It is noted that plans are requested to accompany perspectives as far as practicable, and while elaborately rendered drawings are acceptable, this is not essential, as an exhibition of interesting works inviting examination is the greater object. Drawings, however,

must be framed or mounted, glass being omitted. The exhibition of 1899 promises to be one of the most successful of the League, as the committees in charge have been carefully selected for their ability in the several departments. The chairman of the Catalogue Committee is C. H. Israels, at 194 Broadway.

CHICAGO ARCHITECTURAL CLUB.

On December 12 the club entertained Messrs. Gorham B. Coffin and W. S. Potwin, who read papers upon paints and varnishes. These were followed by informal discussion in which the members obtained much information regarding the use and the abuse of these preservative pigments. The practice inaugurated by the club of inviting practical men in the different lines of material manufacture to read papers and discuss subjects included in their special lines of work and observation is perhaps the most commendable and promises to be the most productive of good of any projected this year. The keen interest manifested and the hearty vote of thanks which followed the reading of the papers evidenced the appreciation of every member present.

OBITUARY.

WILLIAM EDWARD PASCO, of Hartford, Connecticut, died of typhoid fever, at his home, on December 13. Mr. Pasco had practiced his profession but six months, and gave promise of much success. He was born in Detroit twenty-nine years ago, and was married.

IT is with regret we announce the death of Edward F. Randolph, which occurred Sunday, December 18, 1898, of pneumonia, at his late residence, No. 12 East Fifty-eighth street, New York. Mr. Randolph, who was the senior member of the firm of Randolph & Clowes, dealers in plumbers' supplies, Waterbury, Connecticut, was in the sixty-ninth year of his age, and his death will be regretted by a large circle of friends, who came to know him and the firm of which he was an honored member, through business transactions. The business of Randolph & Clowes will continue under the same management as heretofore.

JOHN REDPATH MCLEAN, JR., of Evanston, Illinois, died at Waukegan, Illinois, January 8, 1899. His death was caused by fracture of the head, sustained by falling through the elevator shaft in a planing mill, where he had a few days before taken the position of foreman. The lights of the mill were turned off at 6 o'clock, and, being delayed, in the darkness he mistook the elevator door for that of the stairway. Mr. McLean has been known as a general contractor for a number of years at Evanston. He was born in Waukegan, August 10, 1853, was forty-five years of age, and leaves a wife and son, his father, mother, two sisters and two brothers. He was buried with Masonic honors. His business career was marked by a high sense of honor and integrity. His loss to his many friends is that of a noble spirit taken from them in the prime of his manhood, and midst of his usefulness in his community.

MR. JOSEPH LAMB, of New York, who, as the senior partner in the decorating firm of J. & R. Lamb, is known to the profession generally, died at his home at the close of the year at the age of sixty-five. His father was an architect of considerable repute in England, and coming to America became known through his design for Niblo's garden. Mr. Lamb was born in England, and coming to this country at an early age, the influence of his father's profession led him to the study of architectural art, and particularly in the line of ecclesiastical decoration, and he and his brother have done much toward elevating and refining church decoration, and become famous throughout the United States. His acquaintance with architects was not only general, but his enthusiasm for his art and general knowledge of its history and requirements established a friendship with those with whom his business brought him in contact. The country loses much by this untimely taking away of a true artist and gentleman.

LEGAL NOTES.

MEANING OF "PAYMENTS TO BE MADE ON MONTHLY ESTIMATES."

A decision involving several points of interest to architects has been rendered in a suit brought to foreclose a mechanic's lien claimed for work performed as architect and consulting engineer pursuant to a contract in the form of an offer and acceptance. The offer, called a "Proposal for Engineering Work," consisted of a proposition to prepare for a contemplated power plant plans and specifications for the buildings, foundations, coal hoppers and coal-handling machinery, pipe connections, and to formulate such contracts as would insure against faulty workmanship and design, to supervise the work during construction, and make final test, for the sum of three per cent on total cost of the work. Below the date and signature was added: "Payments to be made on monthly estimates." This was accepted, conditioned upon the agreement terminating in twenty-four months from a specified date.

In court the architect contended that this contract merely defined the aggregate amount of his compensation, without fixing the time of payment. He insisted that the words, "Payments to be made on monthly estimates," standing by themselves, had no definite, ascertainable meaning; that they were not self-explanatory, and that the court could not, from a mere reading of the phrase, say what it meant. This view, if correct, it will be seen, would substantially eliminate from the contract words which the architect himself placed there. But the First Appellate Division of the Supreme Court of New York does not concur in this view. It pronounces (Davis *vs.* New York Steam Company, 54 New York Supplement 78) the difficulties above stated imaginary.

The words quoted, the court holds, plainly meant that proportionate payments of the architect's compensation of "three per cent on total cost of the work" should be made upon monthly estimates of each month's progressive work; in other words, payments each month of three per cent upon the estimated cost of each month's work, the form of the acceptance modifying and limiting the offer so that the contract was reduced to an agreement for service to run through twenty-four months, at a monthly compensation of three per cent upon the cost of each month's completed work, as shown by monthly estimates thereof.

The architect argued that the contract, if thus construed, would enable the company it was made with to defraud him by postponing the work for two years from the date the contract was to take effect. But the answer of the court is that such fraudulent action was not to be presumed, and its possibility could not affect the plain language of the contract. On the other hand, it suggests that it is quite probable that such delay, made in bad faith, would be a breach of the contract for which the company could be compelled to respond in damages.

As the architect gave no evidence of any such monthly estimates, nor of any fact entitling him to payment upon this construction of the contract, the court declares that his complaint was properly dismissed.

The architect, ignoring any such construction, brought his action upon the theory that he was entitled to two per cent upon the estimated total cost of the work. When he commenced the action he had completed the plans and specifications, and he was allowed on the trial to introduce evidence of a custom entitling architects, under contracts of this general nature, upon such completion, to two per cent of the total estimated cost of the work. This evidence the appellate division holds should not have been admitted, as it was in direct conflict with the written agreement of the parties, and plainly the latter must govern.

An additional argument was advanced in support of this evidence of custom. It was said that the words, "Payments to be made on monthly estimates," related to the architect's supervisory work, and not to the preparation of plans and specifications; that as to the latter the custom should govern, while as to the former the effect which has been indicated might be given to this phrase of the contract. This argument the court pronounces specious, but unsound. It holds it impossible to split up the architect's services in the manner suggested. For the totality of his work he was to receive compensation, regulated and defined, both as to time and amount. That was the contract he chose to make, and it could not be varied by oral evidence or custom, says the court.

Following out this doctrine, the court further holds that, as the contract was free from ambiguity, evidence of conversations preceding and accompanying the execution of the contract, tending to show a contemporaneous oral agreement as to the time of payment analogous to that covered by the custom, was also inadmissible.

The great value of this decision to the profession lies in the emphasis which it places afresh upon the great necessity there is for seeing that proper contracts are made when any are entered into.

BUILDING OUTLOOK.

Office of THE INLAND ARCHITECT,
CHICAGO, January 10, 1899.

The year 1899 opens with possibilities and prospects and assurances and certainties to which the business world has been a greater or less stranger since 1892, a period of six years. The conditions today are exceptionally strong. The newspapers, daily and weekly, are full of evidence and jubilations and anticipations and predictions. Much of what they say is likely to occur. In fact, prone as editors are to make the most of a good thing, they do not overstate the situation. There are peculiar elements of strength in it. There are also some features that are not particularly encouraging, and one is that the margin of profits is likely to be low. It is also to be noticed that there is a strong centralizing tendency—a tendency to combine interests to reduce expenses, and in a measure to lessen competition and to secure the benefits of the best possible business management. We may as well recognize the fact that this combination tendency will gain by what it feeds on. There is a transformation process in progress which affects our industries, great and small—our transportation systems, our banking systems to some extent, our property transfer system, and so on. There are new developments in business—or relatively new, like department stores; there are credit-controlling schemes; there is legislation and a dozen other more or less valuable or hurtful agencies at work to record the great changes at work in our social relations in the broadest sense. The growth of the volume of business of late is phenomenal. While our own particular interests may not have received as much benefit as some others, we recognize that favorable influences in our behalf are at work, and that our turn will soon come in its fullness.

MOSAIC.

WILLIAM BRYCE MUNDIE, of the firm of Jenney & Mundie, has been appointed architect of the Chicago Board of Education.

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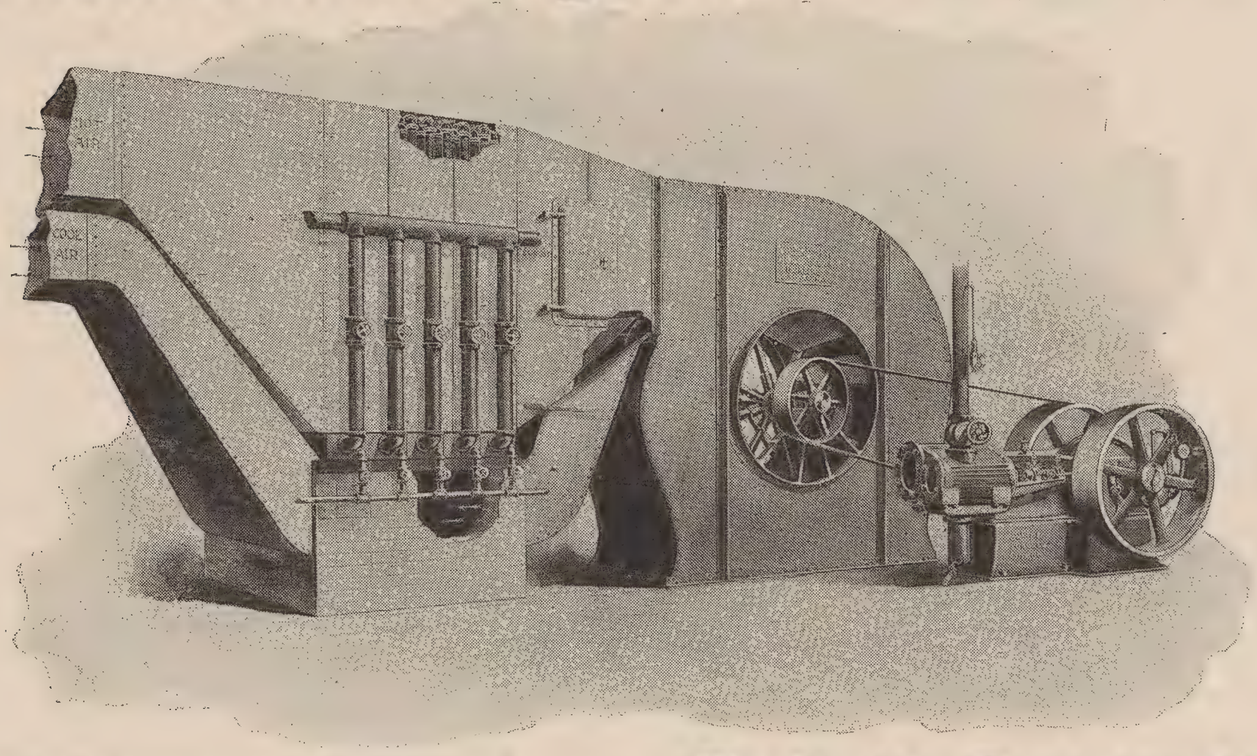

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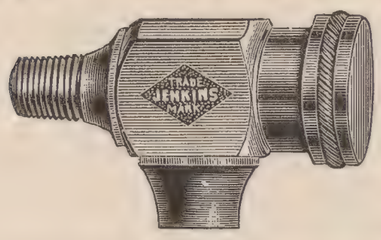

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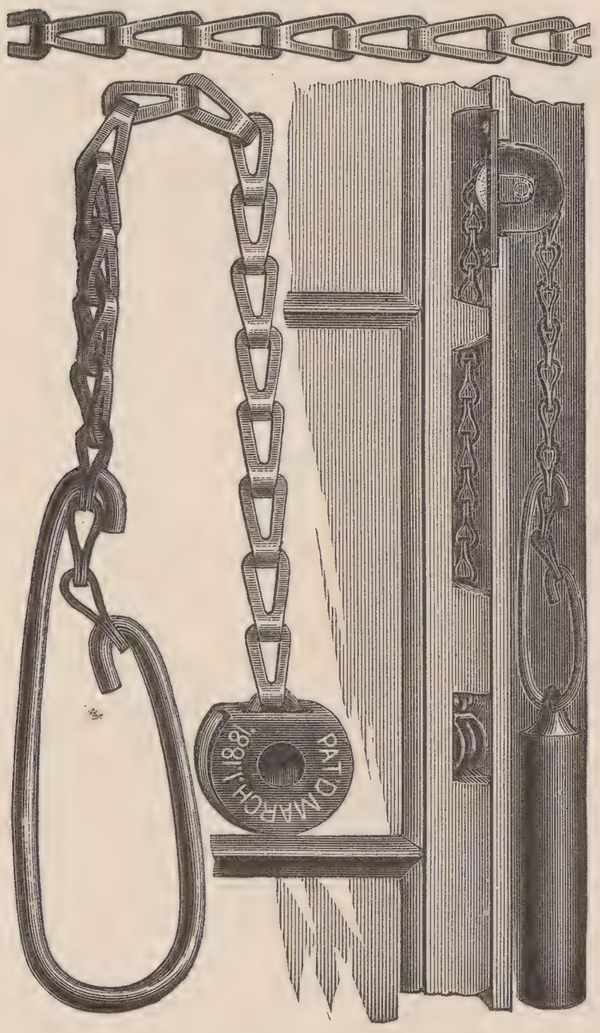

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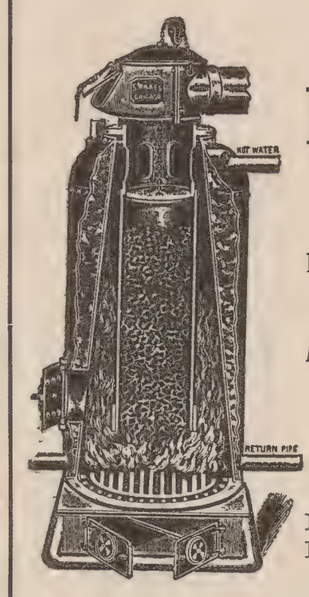

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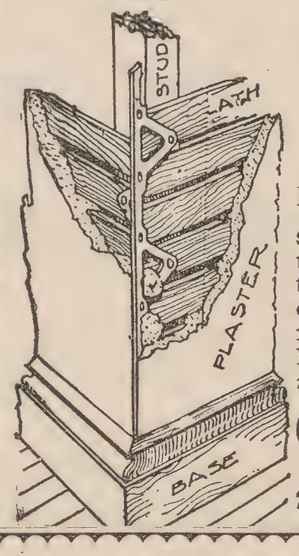

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Vol. XXXII. ADVERTISERS' TRADE SUPPLEMENT. No. 6

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This firm has recently issued a neat folder illustrating the latest development in the design and construction of their horizontal and upright engine types. In this connection it is proper to note the unequaled success of their engine in its running record in the power plant at the Omaha Exposition. The typical features of these engines in the matter of automatic lubrication places them in the front rank, and in the record referred to yielded them first honors in efficiency and continuous service.

BERGER'S CLASSIFIED DESIGNS.

The Berger Manufacturing Company gives us a new idea in metal ceilings. With the first introduction of metal for this purpose, and indeed for some time after, the decorative possibilities were either not fully understood and appreciated, or entirely ignored, and until quite recently little attention was paid to artistic consistency. The paucity of plates of different designs rendered a more or less mixture of styles inevitable. A result of this condition was a limitation of the field of usefulness for metal ceilings. With the idea in mind that in decoration, as in architecture, design and fitness are fundamentals that should always be considered, that whatever artistic style is selected should be adhered to throughout and moreover be in keeping with its architectural surroundings, this firm has prepared a complete and classified set of artistic designs and a full complement of plates for producing them. This enables the purchaser to have a thoroughly artistic metal ceiling at no greater expense than under the old idea. Interested parties may secure full details and estimates if desired by addressing the firm at Canton, Ohio.

THE WESTINGHOUSE COMPOUND ENGINE.

The Westinghouse Machine Company, of Pittsburg, has put in very complete and attractive form a description of the Westinghouse Single Acting Compound Engine. The company's claims for this style of engine are concisely expressed in the statement that "it will deliver a horse-power at the shaft for a smaller expenditure of steam than any other noncondensing engine of any type whatever, running under similar conditions. Its economy under light loads and variable loads is not even remotely approached by any other noncondensing engine. Its economic performance is almost entirely independent of the effects of wear and inaccuracies of valve-setting." The circular contains nearly a hundred pages of matter which should be very interesting to the steam user or engineer. The descriptive pages are devoted principally to this style of engine, which the company builds in eleven sizes, covering a range of from 35 to 740 horse-power; but, coupled with and supmentary to this description, much interesting matter relative to the development of the noncondensing compound engine is given. Holding undisputed claim as pioneers in this field, the statements of the company are worthy of careful consideration.

CABOT'S INSULATING QUILT.

The essential elements necessary to a satisfactory nonconducting or insulating material seem to prevail largely in Cabot's Insulating Quilt. Nonconductors for practical service should be clean, inodorous, lasting, unattractive to insects or mice, not liable to spontaneous combustion, and with no tendency to absorption. The material from which this quilt is made — eel-grass — covers these points and many other desirable features in an insulating substance. Eel-grass contains silicon and a strong percentage of iodine. The silicon renders it noninflammable, while the iodine makes it repulsive to insects or mice, though giving off no odor. The interstices created by the method of manufacture give an abundance of space for dead air, to which the high efficiency of a light nonconductor is largely due. Its use in connection with refrigerators and cold storage compartments is especially commended, recent tests giving it a decided advantage over material much more expensive and difficult of adjustment. Another decided advantage of the quilt, it is claimed, is due to the fact that the jarring of a building, which often destroys the effectiveness of a dense or heavy nonconducting covering, has no deleterious effect on the quilt. When to all these desirable qualities is added that of economy in cost, it would seem that Mr. Cabot makes at least a prima facie case for his product. A query for further information addressed to Samuel Cabot, 70 Kilby street, Boston, will meet with a prompt reply.

ARE SKYSCRAPERS FIREPROOF?

There are two opinions as to the lessons to be deduced from the recent big fire in New York City, which started in Rogers, Peet & Co's clothing warehouse, at Warren street and Broadway, and for a time threatened to destroy the two so-called fireproof skyscrapers to the south of it. The different opinions are expressed as follows:

Superintendent Brady declares that in his opinion the building of the Home Life Insurance Company was really fireproof, and but for the magnificent fashion in which it had resisted the progress of the unprecedented blaze every building along the street would have gone. On the other hand, Hugh Lamb, a prominent architect, declares that none of the so-called fireproof skyscrapers is really fireproof.

"The actual fact is," said he, "that none or few of our so-called skyscrapers are really fireproof. They would burn as fiercely under the stress of a hot fire as did the Home Life Insurance building. As long as our tall buildings are fitted out with wood finishings and wooden floors, so long will they be an easy mark for fire."

If in this case the fire could not have spread from one room to another the fire would have been confined to that one side of the building. It would not have run from room to room and so through the entire building. Something in the way of a fireproof door which will be fireproof, and at the same time not detract from the architectural effect, is a necessity in the light of this recent experience.

There is now in use a metal-covered fireproof door and trimmings that is fireproof, and at the same time is handsome in appearance. The Onondaga County Savings Bank building in Syracuse, which has received so many favorable criticisms, is fully equipped with these doors, and the owners and Mr. Gibson, of New York, the architect, have both expressed "their great satisfaction" to the Fire-Proof Door Company, of Minneapolis, for "the handsome work" which they had given them. The New England Telephone Company, of Boston, went even further and had all windows and frames made of fireproof construction by this same company.

TRADE NOTES.

THE Powers Regulator Company, manufacturers of automatic temperature controlling apparatus, 40 Dearborn street, Chicago, has secured the contract for automatic heat regulation in St. Patrick's Academy, at Chicago, also in the new Masonic Temple in Boston.

THE Apollo Iron & Steel Company, of Pittsburg, Pennsylvania, sends out a card of its products that will be found a valuable work of reference. It is in the form of a tabulated table of standard sizes of galvanized sheet iron, showing in convenient form the size and weight of each sheet, the number of sheets in the bundle, and the weight of the bundle in the different gauges from 10 to 30, inclusive. The number of square feet in each sheet is also shown. The card is arranged to hang on the wall, and a glance is all that is required to determine any of the points named. The high quality of the "Apollo Best Bloom" sheets is so generally recognized that the table mentioned needs only this introduction to be appreciated for its worth and utility.

CONSIDERABLE has been written lately about an old sign in possession of the Western Society of Engineers at Chicago. The words "Harper's Ferry," painted in black, stand out as boldly as when they were first formed by the artist's brush, while the wood around the letters, which was painted with white paint, has worn away about one-sixteenth of an inch. It is asserted by the writers that no paint manufactured nowadays is equal in durability to that which was applied on the old sign. Mr. William Hooper, of Ticonderoga, New York, does not see anything specially remarkable in the preservation of the old sign, and claims that there is just as good a paint made nowadays as then. He adds: "I believe that finely ground graphite mixed with pure linseed oil will last as long, or longer, than any other paint ever known of or used. I had a large iron casting which laid in my millyard for over thirty years. It was painted with only one coat. The old casting was broken up and sold for old iron last month, and I noticed that the paint on the pieces of casting, even after being broken up, looked quite fresh. If the surface to be painted is perfectly dry when the finely ground graphite is applied, the paint will prove the most lasting paint known, because if time eliminates all of the oil, the graphite seems to adhere to the surface painted just the same as a piece of paper or wood will appear after it has been rubbed with a lead pencil or a piece of graphite. With the experience I have had with graphite paint, I thoroughly believe that if any dry surface be covered with graphite paint and left untouched for a period of thirty years — by which time the oil will have disappeared — no doubt a letter could be written plainly on the surface by using a piece of large wire or nail, after smoothing the end of the wire or nail which is to be used as a pencil."

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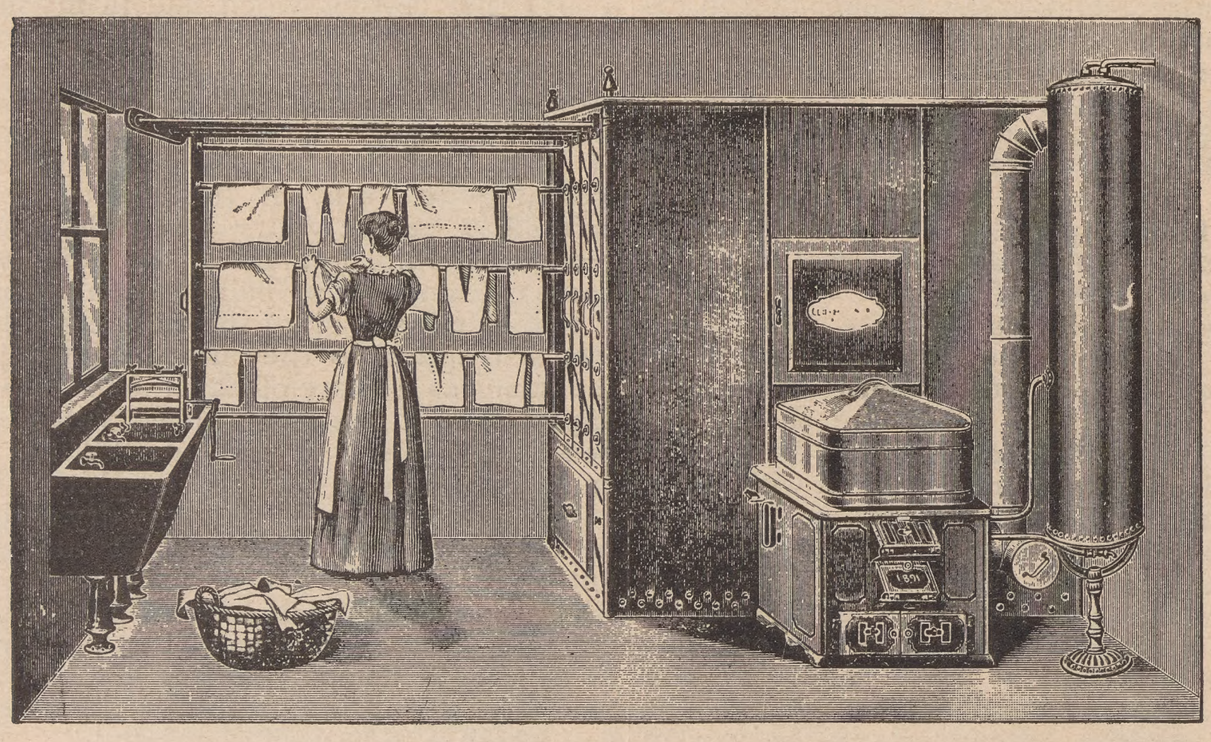

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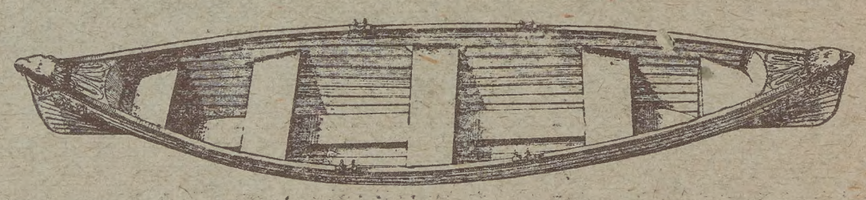

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